

CURRICULUM VITAE

**RICHARD M. CROOKS**

Robert A. Welch Chair in Materials Chemistry  
The University of Texas at Austin

**March, 2012**

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**FORMAL HIGHER EDUCATION**

*Graduate:* The University of Texas at Austin, Ph.D., 1987

Research Advisor: Dr. Allen J. Bard

Specialization: Electrochemistry

*Undergraduate:* The University of Illinois at Urbana-Champaign, B.S., 1981

Research Advisor: Dr. Larry R. Faulkner

Specialization: Electrochemistry

**PROFESSIONAL APPOINTMENTS**

The University of Texas at Austin

Robert A. Welch Chair in Materials Chemistry: 2009 - present

Chairman, Department of Chemistry and Biochemistry: 2008 - 2010

William H. Wade Professor of Chemistry: 2008-2009

Professor of Chemistry: 2005 – 2008

Texas A&M University

Professor of Chemistry: 1997 – 2005

Professor of Chemical Engineering: 2003 – 2005

Founding Director, Center for Integrated Microchemical Systems: 2000 - 2005

Associate Professor of Chemistry: 1993 – 1997

University of New Mexico

Assistant Professor of Chemistry: 1989 – 1993

Massachusetts Institute of Technology

Postdoctoral Associate: 1987 – 1989

**OTHER NOTEWORTHY PROFESSIONAL ACTIVITIES**

Co-founder and member of the board of directors: Eclipse Sciences, Inc. (July, 2003)

Sabbatical appointment: ACLARA Biosciences, Mountain View, CA (January – June, 2000)

**RESEARCH INTERESTS**

Chemical and biological sensors

Integrated microfluidic systems

Nanomaterials

Physical electrochemistry

Catalysis and electrocatalysis

## **HONORS**

### **Significant Awards**

- C. N. Reilly Award of the Society of Electroanalytical Chemistry (2010)
- ACS Division of Analytical Chemistry Award in Electrochemistry (2008)
- Carl Wagner Memorial Award of the Electrochemical Society (2003)
- National Science Foundation Young Investigator Award (1993)
- Office of Naval Research Young Investigator Award (1991)
- Society for Analytical Chemists of Pittsburgh Starter Grant Award (1990)
- Gilbert H. Ayres Award, The University of Texas at Austin (1984)

### **Offices Held in Professional Societies**

- Vice Chairman, Sensor Division, Electrochemical Society (2000-2002)
- Secretary/Treasurer, Sensor Division, Electrochemical Society (1998-2000)
- Executive Committee, Sensor Division, Electrochemical Society (1996-1998)
- Board Member, Society for Electroanalytical Chemistry (1996-2001)
- Awards Committee Chair, Society for Electroanalytical Chemistry (1998 - 2002)

### **Editorial Activities**

- Senior Editor, *Langmuir*, ACS (January 2004 - present)
- Editorial Advisory Board Member, *Analytical Chemistry*, ACS (2011-2013)
- Editorial Advisory Board Member, *Catalysis Science and Technology*, RSC (2010 - present)
- Editorial Committee Member, *Annual Review of Analytical Chemistry* (2006-2012)
- Co-Guest Editor, *Langmuir*, special issue on Electrochemistry, December, 2006 (with Allen J. Bard)
- News and Features Advisory Panel, *Analytical Chemistry*, January, 2004 – December, 2006)
- Editorial Board, *Langmuir*, January, 2000- December, 2003
- Editorial Board, *Advanced Functional Materials*, January, 2001- December, 2003.
- Editorial Board, *Sensor Update*, 1998 onwards
- Co-Guest Editor, *Acc. Chem. Res.*, special issue on Chemical Sensors, May, 1998 (with Antonio J. Ricco)
- Co-Guest Editor, *J. Phys. Chem.*, special Festschrift issue honoring Prof. Allen J. Bard, December, 1998 (with Henry S. White)
- Co-Section Editor, *Encyclopedia of Analytical Chemistry* (with Henry S. White)

### **Significant Administrative Positions**

- Department Chairman, UT-Austin Department of Chemistry and Biochemistry (2008 – 2010)
- Founding Director, TAMU Center for Integrated Microchemical Systems (2001-2005)
- Director of Graduate Studies, TAMU Chemistry Department (1996-1999)

### **Significant Advisory Positions**

- DOE Council for Chemical and Biochemical Sciences (2011-2014)
- NIH NIBIB Nanotechnology Review Panel (January, 2010)

- Molecular Stamping, SAB (2008 – present)
- University of Illinois Science & Technology Center, External Advisory Board (2006-2011)
- ACS Board-Presidential Task Force on the Multidisciplinarity of Chemistry (2004-2005)

## **PUBLICATIONS** (*h-index* = 69)

### **Publications Presently Iterating Between Authors**

- K. N. Knust; E. Sheridan; R. K. Anand; R. M. Crooks "Dual-Channel Bipolar Electrode Focusing: The Simultaneous Separation and Enrichment of Anions and Cations"
- E. Sheridan; D. Hlushkou; K. N. Knust; U. Tallarek; R. M. Crooks "Enrichment of Cations via Bipolar Electrode Focusing"
- H. Liu; R. M. Crooks "Stretching Microdroplets on a Microfluidic Chip for Reproducible Chronoamperometric Analysis"
- S. Pande; R. M. Crooks "Homogeneous Hydrogenation of Allyl Alcohol using Pd, Pt, and Au Dendrimer-Encapsulated Nanoparticles"
- K. Scida; E. Sheridan; R. M. Crooks "Electrochemically Gated Delivery using Bipolar Electrodes: Control over Enriched Band Location and Transport"
- M. L. Cabezas; V. S. Myers; J. Guerra; R. M. Crooks "Solid Extraction of Au Nanoparticles from within Dendrimers"

### **Peer-Reviewed Research Publications: Submitted and In-Press**

- B.-Y. Chang; K.-F. Chow; J. A. Crooks; F. Mavr ; R. M. Crooks "Two-Channel Microelectrochemical Bipolar Electrode Sensor Array" *Analyst*, March, **2012** (submitted).
- A. K. Diallo; S. Pande; R. M. Crooks "Regioselective Hydrogenation of Dienes Catalyzed by Pd or PdAu Alloy Dendrimer-Encapsulated Nanoparticles" *Catal. Sci. Technol.*, February, **2012** (submitted).
- I. Dumitrescu; R. M. Crooks "Effect of Mass Transfer on the Oxygen Reduction Reaction Catalyzed by Platinum Dendrimer Encapsulated Nanoparticles" *Proc. Natl. Acad. Sci., USA*, January, **2012** (submitted).

### **Peer-Reviewed Research Publications: Published**

231. E. V. Carino; H. Y. Kim; G. Henkelman; R. M. Crooks "Site-Selective Cu Deposition on Pt Dendrimer-Encapsulated Nanoparticles: Correlation of Theory and Experiment" *J. Am. Chem. Soc.* **2012**, *134*, 4153-4162 (DOI: 10.1021/ja209115e).
230. H. Liu; R. M. Crooks "A Paper-Based Electrochemical Sensing Platform with Integral Battery and Electrochromic Read-out" *Anal. Chem.* **2012**, *84*, 2528-2532 (DOI: 10.1021/ac203457h).
229. D. F. Yancey; L. Zhang; R. M. Crooks; G. Henkelman "Au@Pt Dendrimer Encapsulated Nanoparticles as Model Electrocatalysts for Comparison of Experiment and Theory" *Chem. Sci.* **2012**, *3*, 1033-1040 (DOI: 10.1039/C2SC00971D).

228. I. Dumitrescu; D. F. Yancey; R. M. Crooks "Dual-Electrode Microfluidic Cell for Characterizing Electrocatalysts" *Lab Chip* **2012**, *12*, 986-993 (DOI: 10.1039/C2LC21181E).
227. V. S. Myers; A. I. Frenkel; R. M. Crooks "In-situ Structural Characterization of Platinum Dendrimer-Encapsulated Oxygen Reduction Electrocatalysts" *Langmuir* **2012**, *28*, 1596-1603 (DOI: 10.1021/la203756z).
226. S. E. Fosdick; R. M. Crooks "Bipolar Electrodes for Rapid Screening of Electrocatalysts" *J. Am. Chem. Soc.* **2012**, *134*, 863-866 (DOI: 10.1021/ja210354m).
225. H. Liu; R. M. Crooks "Three-Dimensional Paper Microfluidic Devices Based on the Principles of Origami" *J. Am. Chem. Soc.* **2011**, *133*, 17564-17566 (DOI: 10.1021/ja2071779).
224. B. A. Zaccheo; R. M. Crooks "Stabilization of Alkaline Phosphatase with Au@Ag<sub>2</sub>O Nanoparticles" *Langmuir* **2011**, *27*, 11591-11596 (DOI: 10.1021/la202405t).
223. E. Sheridan; K. N. Knust; R. M. Crooks "Bipolar Electrode Depletion: Membraneless Filtration of Charged Species Using an Electrogenerated Electric Field Gradient" *Analyst* **2011**, *136*, 4134-4137 (DOI: 10.1039/c1an15510e).
222. E. Sheridan; D. Hlushkou; R. K. Anand; D. R. Laws; U. Tallarek; R. M. Crooks "Label-free Electrochemical Monitoring of Concentration Enrichment During Bipolar Electrode Focusing" *Anal. Chem.* **2011**, *83*, 6746-6753 (DOI: 10.1021/ac201402n).
221. V. S. Myers; M. G. Weir; E. V. Carino; D. F. Yancey; S. Pande; R. M. Crooks "Dendrimer-encapsulated Nanoparticles: New Synthetic and Characterization Methods and Catalytic Applications" *Chem. Sci.* **2011**, *2*, 1632-1646 (DOI:10.1039/c1sc00256b).
220. S. Pande; R. M. Crooks "Analysis of Poly(amidoamine) Dendrimer Structure by UV-vis Spectroscopy" *Langmuir* **2011**, *27*, 9609-9613 (DOI: 10.1021/la201882t).
219. S. Pande; M. G. Weir; B. A. Zaccheo; R. M. Crooks "Synthesis, Characterization, and Electrocatalysis using Pt and Pd Dendrimer-Encapsulated Nanoparticles Prepared by Galvanic Exchange" *New J. Chem.* **2011**, *35*, 2054-2060 (invited special issue in honor of Prof. Didier Astruc, DOI 10.1039/c1nj20083f).
218. I. Dumitrescu; R. K. Anand; S. E. Fosdick; R. M. Crooks "Pressure-Driven Bipolar Electrochemistry" *J. Am. Chem. Soc.* **2011**, *133*, 4687-4689.
217. E. V. Carino; R. M. Crooks "Characterization of Pt@Cu Core@Shell Dendrimer-Encapsulated Nanoparticles Synthesized by Cu Underpotential Deposition" *Langmuir* **2011**, *27*, 4227-4235.
216. C. H. Wales; J. Berger; S. Blass; R. M. Crooks; N. Asherie "Quasielastic Light Scattering of Platinum Dendrimer-Encapsulated Nanoparticles" *Langmuir* **2011**, *27*, 4104-4109.
215. R. K. Anand; E. Sheridan; K. N. Knust; R. M. Crooks "Bipolar Electrode Focusing: Faradaic Ion Concentration Polarization" *Anal. Chem.* **2011**, *83*, 2351-2358.
214. B. A. Zaccheo; R. M. Crooks "Self-Powered Sensor for Naked-Eye Detection of Serum Trypsin" *Anal. Chem.* **2011**, *83*, 1185-1188.
213. R. K. Anand; E. Sheridan; D. Hlushkou; U. Tallarek; R. M. Crooks "Bipolar Electrode Focusing: Tuning the Electric Field Gradient" *Lab Chip* **2011**, *11*, 518-527.

212. B.-Y. Chang; J. A. Crooks; K.-F. Chow; F. Mavr ; R. M. Crooks "Design and Operation of Microelectrochemical Gates and Integrated Circuits" *J. Am. Chem. Soc.* **2010**, *132*, 15404-15409.
211. F. Mavr ; R. K. Anand; D. R. Laws; K.-F. Chow; B.-Y. Chang; J. A. Crooks; R. M. Crooks "Bipolar Electrodes: a Useful Tool for Concentration, Separation, and Detection of Analytes in Microelectrochemical Systems" *Anal. Chem.* **2010**, *82*, 8766-8774 (invited feature article).
210. M. G. Weir; V. S. Myers; A. I. Frenkel; R. M. Crooks "In-situ X-ray Absorption Analysis of ~1.8 nm Dendrimer-Encapsulated Pt Nanoparticles During Electrochemical CO Oxidation" *ChemPhysChem* **2010**, *11*, 2942-2950 (invited, special issue on electrochemistry).
209. D. F. Yancey; E. V. Carino; R. M. Crooks "Electrochemical Synthesis and Electrocatalytic Properties of Au@Pt Dendrimer-Encapsulated Nanoparticles" *J. Am. Chem. Soc.* **2010**, *132*, 10988-10989.
208. A. T. Gates; E. G. Nettleton; V. S. Myers; R. M. Crooks "Synthesis and Characterization of NiSn Dendrimer-Encapsulated Nanoparticles" *Langmuir* **2010**, *26*, 12994-12999.
207. K.-F. Chow; B.-Y. Chang; B. A. Zaccaro; F. Mavr ; R. M. Crooks "A Sensing Platform Based on Electrodissolution of a Ag Bipolar Electrode" *J. Am. Chem. Soc.* **2010**, *132*, 9228-9229.
206. S. E. Fosdick; J. A. Crooks; B.-Y. Chang; R. M. Crooks "Two-Dimensional Bipolar Electrochemistry" *J. Am. Chem. Soc.* **2010**, *132*, 9226-9227.
205. B.-Y. Chang; F. Mavr ; K.-F. Chow; J. A. Crooks; R. M. Crooks "Snapshot Voltammetry Using a Triangular Bipolar Microelectrode" *Anal. Chem.* **2010**, *82*, 5317-5322.
204. M. A. Herrero; J. Guerra; V. S. Myers; M. V. G mez; R. M. Crooks; M. Prato "Gold Dendrimer-Encapsulated Nanoparticles as Labeling Agents for Multi-Walled Carbon Nanotubes" *ACS Nano* **2010**, *4*, 905-912.
203. M. A. Albitar; R. M. Crooks; F. Zaera "Adsorption of Carbon Monoxide on Dendrimer-Encapsulated Platinum Nanoparticles: Liquid versus Gas Phase" *J. Phys. Chem. Lett.* **2010**, *1*, 38-40.
202. M. G. Weir; M. R. Knecht; A. I. Frenkel; R. M. Crooks "Structural Analysis of PdAu Dendrimer-Encapsulated Bimetallic Nanoparticles" *Langmuir* **2010**, *26*, 1137-1146.
201. R. K. Perdue; D. R. Laws; D. Hlushkou; U. Tallarek; R. M. Crooks "Bipolar Electrode Focusing: the Effect of Current and Electric Field on Concentration Enrichment" *Anal. Chem.* **2009**, *81*, 10149-10155.
200. D. R. Laws; D. Hlushkou; R. K. Perdue; U. Tallarek; R. M. Crooks "Bipolar Electrode Focusing: Simultaneous Concentration Enrichment and Separation in a Microfluidic Channel Containing a Bipolar Electrode" *Anal. Chem.*, **2009**, *81*, 8923-8929.
199. S. V. Myers; A. I. Frenkel; R. M. Crooks "An X-ray Absorption Study of PdCu Bimetallic Alloy Nanoparticles Containing an Average of 64 Atoms" *Chem. Mater.* **2009**, *21*, 4824-4829.
198. M. V. Gomez; J. Guerra; V. S. Myers; R. M. Crooks; A. H. Velders "Nanoparticle size determination by <sup>1</sup>H NMR spectroscopy" *J. Am. Chem. Soc.* **2009**, *131*, 14634-14635.

197. F. Mavr ; K.-F. Chow; E. Sheridan; B.-Y. Chang; J. A. Crooks; R. M. Crooks "A Theoretical and Experimental Framework for Understanding ECL Emission at Bipolar Electrodes" *Anal. Chem.* **2009**, *81*, 6218-6225.
196. B. A. Zacheo; R. M. Crooks "Detection of an Epstein-Barr Genome Analog at Physiological Concentrations via the Biometallization of Interdigitated Array Electrodes" *Anal. Chem.* **2009**, *81*, 5757-5761.
195. E. V. Carino; M. R. Knecht; R. M. Crooks "Quantitative Analysis of the Stability of Pd Dendrimer-Encapsulated Nanoparticles" *Langmuir* **2009**, *25*, 10279-10284.
194. K.-F. Chow; F. Mavr ; J. A. Crooks; B.-Y. Chang; R. M. Crooks "A large-scale, wireless electrochemical bipolar electrode microarray" *J. Am. Chem. Soc.* **2009**, *131*, 8364-8365.
193. D. Hlushkou; R. K. Perdue; R. Dhopeswarkar; R. M. Crooks; U. Tallarek "Electric field gradient focusing in microchannels with embedded bipolar electrode" *Lab Chip*, **2009**, *9*, 1903-1913.
192. Z. V. Feng; J. L. Lyon; J. S. Croley; R. M. Crooks; D. A. Vanden Bout; K. J. Stevenson "Synthesis and Catalytic Evaluation of Dendrimer-Encapsulated Cu Nanoparticles: An Undergraduate Experiment Exploring Catalytic Nanomaterials" *J. Chem. Ed.* **2009**, *86*, 368-372.
191. M. V. Gomez; J. Guerra; A. H. Velders; R. M. Crooks "NMR Characterization of Fourth-generation PAMAM Dendrimers in the Presence and Absence of Palladium Dendrimer-Encapsulated Nanoparticles" *J. Am. Chem. Soc.* **2009**, *131*, 341-350. Correction published October, 2009: *J Am. Chem. Soc.* **2009**, *131*, 15564.
190. M. R. Knecht; M. G. Weir; V. S. Myers; W. D. Pyrz; H. Ye; V. Petkov; D. J. Buttrey; A. I. Frenkel; R. M. Crooks "Synthesis and Characterization of Pt Dendrimer-Encapsulated Nanoparticles: Effect of the Template on Nanoparticle Formation" *Chem. Mater.* **2008**, *20*, 5218-5228.
189. R. Dhopeswarkar; D. Hlushkou; M. Nguyen; U. Tallarek; R. M. Crooks "Electrokinetics in Microfluidic Channels Containing a Floating Electrode" *J. Am. Chem. Soc.* **2008**, *130*, 10480-10481.
188. D. Hlushkou; R. Dhopeswarkar; R. M. Crooks; U. Tallarek "The Influence of Membrane Ion-permselectivity on Electrokinetic Concentration Enrichment in Membrane-based Preconcentration Units" *Lab Chip* **2008**, *8*, 1153-1162.
187. K.-F. Chow; F. Mavr ; R. M. Crooks "Wireless Electrochemical DNA Microarray Sensor" *J. Am. Chem. Soc.* **2008**, *130*, 7544-7545.
186. V. Petkov; N. Bedford; M. R. Knecht; M. G. Weir; R. M. Crooks; W. Tang; G. Henkelman; A. Frenkel "Periodicity and Atomic Ordering in Nanosized Particles of Crystals" *J. Phys. Chem. C* **2008**, *112*, 8907-8911.
185. R. Dhopeswarkar; R. M. Crooks; D. Hlushkou; U. Tallarek "Transient Effects on Microchannel Electrokinetic Filtering with an Ion-Permselective Membrane" *Anal. Chem.* **2008**, *80*, 1039-1048.
184. M. R. Knecht; M. G. Weir; A. I. Frenkel; R. M. Crooks "Structural Rearrangement of Bimetallic Alloy PdAu Nanoparticles within Dendrimer Templates to Yield Core/Shell Configurations" *Chem. Mater.* **2008**, *20*, 1019-1028.

183. J. Kim; R. M. Crooks "Parallel Fabrication of RNA Microarrays by Mechanical Transfer from a DNA Master" *Anal. Chem.* **2007**, *79*, 8994-8999.
182. H. Ye; J. A. Crooks; R. M. Crooks "The Effect of Particle Size on the Kinetics of the Electrocatalytic Oxygen Reduction Reaction Catalyzed by Pt Dendrimer-Encapsulated Nanoparticles" *Langmuir* **2007**, *23*, 11901-11906.
181. J. Kim; R. M. Crooks "Replication of DNA Microarrays Prepared by In-Situ Oligonucleotide Polymerization and Mechanical Transfer" *Anal. Chem.* **2007**, *79*, 7267-7274.
180. W. M. Lackowski; Y. Vasilyeva; R. M. Crooks; S. C. Kerwin; D. A. Hulse "Microchemical and Surface Evaluation of Canine Tibial Plateau Leveling Osteotomy Plates" *Am. J. Vet. Res.* **2007**, *68*, 908-916.
179. M. R. Knecht; R. M. Crooks "Magnetic Properties of Dendrimer-Encapsulated Iron Nanoparticles Containing 55 and 147 Atoms" *New J. Chem.* **2007**, *31*, 1349-1353. Special issue on dendrimers.
178. H. Ye; R. M. Crooks "Effect of Elemental Composition of PtPd Bimetallic Nanoparticles Containing an Average of 180 Atoms on the Kinetics of the Electrochemical Oxygen Reduction Reaction" *J. Am. Chem. Soc.* **2007**, *129*, 3627-3633.
177. J. Kim; J. Heo; R. M. Crooks "Hybridization of DNA to Bead-Immobilized Probes Confined within a Microfluidic Channel" *Langmuir* **2006**, *22*, 10130-10134.
176. M. R. Knecht; J. C. Garcia-Martinez; R. M. Crooks "Synthesis, Characterization, and Magnetic Properties of Dendrimer-Encapsulated Nickel Nanoparticles Containing <150 Atoms" *Chem. Mater.* **2006**, *18*, 5039-5044.
175. J. Kim; R. M. Crooks "Transfer of Surface Polymerase Reaction Products to a Secondary Platform with Conservation of Spatial Registration" *J. Am. Chem. Soc.* **2006**, *128*, 12076-12077.
174. O. M. Wilson; M. R. Knecht; J. C. Garcia-Martinez; R. M. Crooks "The Effect of Pd Nanoparticle Size on the Catalytic Hydrogenation of Allyl Alcohol" *J. Am. Chem. Soc.* **2006**, *128*, 4510-4511.
173. H. Lin; J. Kim; L. Sun; R. M. Crooks "Replication of DNA Microarrays from Zip Code Masters" *J. Am. Chem. Soc.* **2006**, *128*, 3268-3272.
172. L. Sun; R. M. Crooks "Photonic Reporting of Electrochemical Reactions Using Light Emitting Diodes" *J. Electrochem. Soc.* **2005**, *152*, E371-E377.
171. M. R. Knecht; J. C. Garcia-Martinez; R. M. Crooks "Hydrophobic Dendrimers as Templates for Au Nanoparticles" *Langmuir* **2005**, *21*, 11981-11986.
170. Y.-G. Kim; R. M. Crooks "Synthesis and Characterization of Covalently Linked Multilayer Films Prepared in the Absence of Solvent" *Langmuir* **2005**, *21*, 11262-11267.
169. J. Heo; R. M. Crooks "Microfluidic Biosensor Based on an Array of Hydrogel-Entrapped Enzymes" *Anal. Chem.* **2005**, *77*, 6843-6851.
168. R. Dhopeswarkar; L. Sun; R. M. Crooks "Electrokinetic Concentration Using Hydrogel Microplugs within a Microfluidic Device" *Lab Chip* **2005**, *5*, 1148 - 1154.

167. S.-K. Oh; Y. Niu; R. M. Crooks "Size-Selective Catalytic Activity of Pd Nanoparticles Encapsulated within End-Group Functionalized Dendrimers" *Langmuir* **2005**, *21*, 10209-10213.
166. H. Lin; L. Sun; R. M. Crooks "Replication of a DNA Microarray" *J. Am. Chem. Soc.* **2005**, *27*, 11210-11211.
165. Y.-G. Kim; J. C. Garcia-Martinez; R. M. Crooks "Electrochemical Properties of Monolayer-Protected Au and Pd Nanoparticles Extracted from within Dendrimer Templates" *Langmuir* **2005**, *21*, 5485-5491.
164. J. C. Garcia-Martinez; R. Lezutekong; R. M. Crooks "Dendrimer-Encapsulated Pd Nanoparticles as Aqueous, Room-Temperature Catalysts for the Stille Reaction" *J. Am. Chem. Soc.* **2005**, *127*, 5097-5103.
163. H. Ye; R. M. Crooks "Electrocatalytic O<sub>2</sub> Reduction at Glassy Carbon Electrodes Modified with Dendrimer-Encapsulated Pt Nanoparticles" *J. Am. Chem. Soc.* **2005**, *127*, 4930-4934.
162. R. W. J. Scott; C. Sivadinarayana; O. M. Wilson; Z. Yan; D. W. Goodman; R. M. Crooks "Titania-Supported PdAu Bimetallic Catalysts Prepared from Dendrimer-Encapsulated Nanoparticle Precursors" *J. Am. Chem. Soc.* **2005**, *127*, 1380-1381.
161. O. M. Wilson; R. W. J. Scott; J. C. Garcia-Martinez; R. M. Crooks "Synthesis, Characterization, and Structure-Selective Extraction of 1-3 nm-Diameter AuAg Dendrimer-Encapsulated Bimetallic Nanoparticles" *J. Am. Chem. Soc.* **2005**, *127*, 1015-1024.
160. R. W. J. Scott; O. M. Wilson; R. M. Crooks "Synthesis, Characterization, and Applications of Dendrimer-Encapsulated Nanoparticles" *J. Phys. Chem. B* **2005**, *109*, 692-704 (Feature Article).
159. R. W. J. Scott; O. M. Wilson; R. M. Crooks "Titania-Supported Au and Pd Composites Synthesized from Dendrimer-Encapsulated Metal Nanoparticle Precursors" *Chem. Mater.* **2004**, *16*, 5682-5688.
158. T. Ito; L. Sun; R. R. Henriquez; R. M. Crooks "A Carbon Nanotube-Based Coulter Nanoparticle Counter" *Acc. Chem. Res.* **2004**, *37*, 937-945.
157. J. C. Garcia-Martinez; R. M. Crooks "Extraction of Au Nanoparticles having Narrow Size Distributions from within Dendrimer Templates" *J. Am. Chem. Soc.* **2004**, *126*, 16170-16178.
156. R. W. J. Scott; O. M. Wilson; S.-K. Oh; E. A. Kenik; R. M. Crooks "Bimetallic Palladium-Gold Dendrimer-Encapsulated Catalysts" *J. Am. Chem. Soc.* **2004**, *126*, 15583-15591.
155. O. M. Wilson; R. W. J. Scott; J. C. Garcia-Martinez; R. M. Crooks "Separation of Dendrimer-Encapsulated Au and Ag Nanoparticles by Selective Extraction" *Chem. Mater.* **2004**, *16*, 4202-4204.
154. T. Ito; L. Sun; M. A. Bevan; R. M. Crooks "Comparison of Nanoparticle Size and Electrophoretic Mobility Measurements using a Carbon Nanotube-Based Coulter Counter, Dynamic Light Scattering, Transmission Electron Microscopy, and Phase Analysis Light Scattering" *Langmuir* **2004**, *20*, 6940-6945.
153. G. P. Perez; R. M. Crooks "Pore-Bridging Poly(dimethylsiloxane) Membranes as Selective Interfaces for Vapor-Phase Chemical Sensing" *Anal. Chem.* **2004**, *76*, 4137-4142.



152. D. Liu; R. K. Perdue; L. Sun; R. M. Crooks "Immobilization of DNA onto Poly(dimethylsiloxane) Surfaces and Application to a Microelectrochemical Enzyme-Amplified DNA Hybridization Assay" *Langmuir* **2004**, *20*, 5905-5910.
151. R. R. Henriquez; T. Ito; L. Sun; R. M. Crooks "The Resurgence of Coulter Counting for Analyzing Nanoscale Objects" *The Analyst* **2004**, *129*, 478-482.
150. H. Ye; R. W. J. Scott; R. M. Crooks "Synthesis, Characterization, and Surface Immobilization of Platinum and Palladium Nanoparticles Encapsulated within Amine-terminated Poly(amidoamine) Dendrimers" *Langmuir* **2004**, *20*, 2915-2920.
149. Y.-G. Kim; S.-K. Oh; R. M. Crooks "Preparation and Characterization of 1-2 nm Dendrimer-Encapsulated Gold Nanoparticles having Very Narrow Size-Distributions" *Chem. Mater.* **2004**, *16*, 167-172.
148. S.-K. Oh; Y.-G. Kim; H. Ye; R. M. Crooks "Synthesis, Characterization, and Surface Immobilization of Metal Nanoparticles Encapsulated within a Polycationic Dendrimer" *Langmuir* **2003**, *19*, 10420-10425.
147. Y. Niu; R. M. Crooks "Dendrimer-Encapsulated Metal Nanoparticles and their applications to Catalysis" *Comptes Rendus Chimie* **2003**, *6*, 1049-1059 (invited).
146. J. Dai; T. Ito; L. Sun; R. M. Crooks "Electrokinetic Trapping and Concentration Enrichment of DNA in a Microfluidic Channel" *J. Am. Chem. Soc.* **2003**, *125*, 13026-13027.
145. R. W. J. Scott; H. Ye; R. R. Henriquez; R. M. Crooks "Synthesis, Characterization, and Stability of Dendrimer-Encapsulated Palladium Nanoparticles" *Chem. Mater.* **2003**, *15*, 3873-3878.
144. J. C. Garcia-Martinez; R. W. J. Scott; R. M. Crooks "Extraction of Monodisperse Palladium Nanoparticles from Dendrimer Templates" *J. Am. Chem. Soc.* **2003**, *125*, 11190-11191.
143. Y. Niu; R. M. Crooks "Preparation of Dendrimer-Encapsulated Metal Nanoparticles using Organic Solvents" *Chem. Mater.* **2003**, *15*, 3463-3467.
142. W. Zhan; R. M. Crooks "Microfluidic Logic Circuits" *J. Am. Chem. Soc.* **2003**, *125*, 9934-9935.
141. Y. Niu; L. Sun; R. M. Crooks "Determination of the Intrinsic Proton Binding Constants for Poly(amidoamine) Dendrimers via Potentiometric pH Titration" *Macromolecules* **2003**, *36*, 5725-5731.
140. G. P. Perez; W. G. Yelton; R. W. Cernosek; R. J. Simonson; R. M. Crooks "Gas Adsorption Gates Based on Ultrathin Composite Polymer Films" *Anal. Chem.* **2003**, *75*, 3625-3630.
139. G. H. Seong; J. Heo; R. M. Crooks "Measurement of Enzyme Kinetics using a Continuous-Flow Microfluidic System" *Anal. Chem.* **2003**, *75*, 3161-3167.
138. T. Ito; L. Sun; R. M. Crooks "Observation of DNA Transport through a Single Carbon Nanotube Channel Using Fluorescence Microscopy" *Chem. Comm.* **2003**, 1482-1483.
137. T. Ito; L. Sun; R. M. Crooks "Simultaneous Determination of the Size and Surface Charge of Individual Nanoparticles Using a Carbon Nanotube-Based Coulter Counter" *Anal. Chem.* **2003**, *75*, 2399-2406.
136. R. W. J. Scott; A. K. Datye; R. M. Crooks "Bimetallic Palladium-Platinum Dendrimer-Encapsulated Catalysts" *J. Am. Chem. Soc.* **2003**, *125*, 3708-3709.

135. S. A. Bell; M. E. McClean; S.-K. Oh; S. E. Tichy; W. Zhang; R. M. Corn; R. M. Crooks; E. E. Simanek "Covalently Linked Single-Stranded DNA Oligonucleotide-Dendron Assemblies: Synthesis and Characterization" *Bioconj. Chem.* **2003**, 14, 488-493.
134. W. Zhan; J. Alvarez; R. M. Crooks "A Multichannel Microfluidic Sensor that Detects Anodic Redox Reactions Indirectly Using Anodic Electrogenerated Chemiluminescence" *Anal. Chem.* **2003**, 75, 1233-1238.
133. W. Zhan; J. Alvarez; R. M. Crooks "A Two-Channel Microfluidic Sensor that Uses Anodic Electrogenerated Chemiluminescence as a Photonic Reporter of Cathodic Redox Reactions" *Anal. Chem.* **2003**, 75, 313-318.
132. J. Heo; K. J. Thomas; G. H. Seong; R. M. Crooks "A Microfluidic Bioreactor Based on Hydrogel-Entrapped *E. coli*: Cell Viability, Lysis, and Intracellular Enzyme Reactions" *Anal. Chem.* **2003**, 75, 22-26.
131. T. Ito; L. Sun; R. M. Crooks "Electrochemical Etching of Individual Multiwall Carbon Nanotubes" *Electrochem. Solid State Lett.* **2003**, 6, C4-C7.
130. B. Rowan; M. A. Wheeler; R. M. Crooks "Patterning Bacteria within Hyperbranched Polymer Film Templates" *Langmuir* **2002**, 18, 9914-9917.
129. G. H. Seong; R. M. Crooks "Efficient Mixing and Reactions within Microfluidic Channels Using Microbead-Supported Catalysts" *J. Am. Chem. Soc.* **2002**, 124, 13360-13361.
128. W. Zhan; J. Alvarez; R. M. Crooks "Electrochemical Sensing in Microfluidic Systems Using Electrogenerated Chemiluminescence as a Photonic Reporter of Redox Reactions" *J. Am. Chem. Soc.* **2002**, 124, 13265-13270.
127. L. Sun; R. M. Crooks "Dendrimer-Mediated Immobilization of Catalytic Nanoparticles on Flat, Solid Supports" *Langmuir* **2002**, 18, 8231-8236.
126. W. Zhan; G. H. Seong; R. M. Crooks "Hydrogel-Based Microreactors as a Functional Component of Microfluidic Systems" *Anal. Chem.* **2002**, 74, 4647-4652.
125. J. Alvarez; L. Sun; R. M. Crooks "Electroactive Composite Dendrimer Films Containing Thiophene-Terminated Poly(amidoamine) Dendrimers Crosslinked by Poly(3-Methylthiophene)" *Chem. Mater.* **2002**, 14, 3995-4001.
124. S.-K. Oh; L. A. Baker; R. M. Crooks "Electrochemical Rectification Using Mixed Monolayers of Redox-Active Ferrocenyl Dendrimers and *n*-Alkanethiols" *Langmuir* **2002**, 18, 6981-6987.
123. G. H. Seong; W. Zhan; R. M. Crooks "Fabrication of Microchambers within Microfluidic Systems using Photopolymerized Hydrogels: Application to DNA Hybridization" *Anal. Chem.* **2002**, 74, 3372-3377.
122. L. Sun; R. M. Crooks "Interactions between Dendrimers and Charged Probe Molecules. 1. Theoretical Methods for Simulating Proton and Metal Ion Binding to Symmetrical Polydentate Ligands" *J. Phys. Chem. B.* **2002**, 106, 5864-5872.
121. L. A. Baker; L. Sun; R. M. Crooks "Synthesis and Catalytic Properties of Imidazole-Functionalized Poly(propylene imine) Dendrimers" *Bull. Korean Chem. Soc.* **2002**, 23, 647-654 (invited feature article).
120. R. M. Crooks "Patterning of Hyperbranched Polymer Films" *Chem. Phys. Chem.* **2001**, 2, 644-654.

119. L. K. Yeung; C. J. Lee, Jr.; K. P. Johnston; R. M. Crooks "Heck Catalysis in Supercritical CO<sub>2</sub> using Palladium Nanoparticles Encapsulated in Dendrimer Nanoreactors" *Chem. Commun.* **2001**, 2290-2291.
118. W. S. Baker; B. I. Lemon, III; R. M. Crooks "Electrochemical and Spectroscopic Characterization of Viologen-Functionalized Poly(amidoamine) Dendrimers" *J. Phys. Chem.* **2001**, *105*, 8885-8894.
117. S. V. Verhoturov; E. A. Schweikert; E. S. Parilis; V. Chechik; R. C. Sabapathy; R. M. Crooks "Auger-Stimulated Ion Desorption of Negative Ions" *Phys. Rev. Lett.* **2001**, *87*, 037601-1 – 037601-4.
116. Y. Niu; L. K. Yeung; R. M. Crooks "Size-Selective Hydrogenation of Olefins by Dendrimer-Encapsulated Palladium Nanoparticles" *J. Am. Chem. Soc.* **2001**, *123*, 6840-6846.
115. L. Zhou; D. H. Russell; M. Zhao; R. M. Crooks "Characterization of Poly(amidoamine) Dendrimers and Their Complexes with Cu<sup>2+</sup> by Matrix Assisted Laser Desorption Ionization Mass Spectrometry" *Macromolecules* **2001**, *34*, 3567-3573.
114. M. L. Amirpour; P. Ghosh; W. M. Lackowski; R. M. Crooks; M. V. Pishko "Mammalian Cell Cultures on Micropatterned Surfaces of Weak-Acid, Polyelectrolyte Hyperbranched Thin Films on Gold" *Anal. Chem.* **2001**, *73*, 1560-1566.
113. R. M. Crooks; M. Zhao; L. Sun; V. Chechik; L. K. Yeung "Dendrimer-Encapsulated Metal Nanoparticles: Synthesis, Characterization, and Applications to Catalysis" *Acc. Chem. Res.* **2001**, *34*, 181-190.
112. P. Ghosh; W. M. Lackowski; R. M. Crooks "Two New Approaches for Patterning Polymer Films using Templates Prepared by Micro-Contact Printing" *Macromolecules* **2001**, *34*, 1230-1236.
111. L. Sun; R. M. Crooks; V. Chechik "Preparation of Polycyclodextrin Hollow Nanospheres by Templating Gold Nanoparticles" *Chem. Commun.* **2001**, 359-360.
110. L. K. Yeung; R. M. Crooks "Heck Heterocoupling within a Dendritic Nanoreactor" *Nano Lett.* **2001**, *1*, 14-17.
109. B. I. Lemon; R. M. Crooks "Preparation and Characterization of Dendrimer-Encapsulated CdS Semiconductor Quantum Dots" *J. Am. Chem. Soc.* **2000**, *122*, 12886-12887.
108. R. D. English; M. J. Van Stipdonk; R. C. Sabapathy; R. M. Crooks; E. A. Schweikert "Characterization of Photooxidized Self-Assembled Monolayers and Bilayers by Spontaneous Desorption Mass Spectrometry" *Anal. Chem.* **2000**, *72*, 5973-5980.
107. L. Sun; R. M. Crooks "Single Carbon-Nanotube Membranes: A Well-Defined Model for Studying Mass Transport through Nanoporous Materials" *J. Am. Chem. Soc.* **2000**, *122*, 12340-12345.
106. L. A. Baker; R. M. Crooks "Photophysical Properties of Pyrene-Functionalized Poly(propylene imine) Dendrimers" *Macromolecules* **2000**, *33*, 9034-9039.
105. V. Chechik; R. M. Crooks; C. J. M. Stirling "Reactions and Reactivity in Self-Assembled Monolayers" *Adv. Mater.* **2000**, *12*, 1161-1171.
104. R. C. Sabapathy; R. M. Crooks "Synthesis of a Three-Layer Organic Thin Film Prepared by Sequential Reactions in the Absence of Solvents" *Langmuir* **2000**, *16*, 7783-7788.

103. R. C. Sabapathy; R. M. Crooks "Interfacial Reactivity of Hydroxyl-Terminated Monolayers in the Absence of Solvents" *Langmuir* **2000**, *16*, 1777-1782.
102. V. Chechik; R. M. Crooks "Dendrimer-Encapsulated Pd Nanoparticles as Fluorous-Phase-Soluble Catalysts" *J. Am. Chem. Soc.* **2000**, *122*, 1243-1244.
101. D. D. Smith; Y. Yoon; R. W. Boyd; J. K. Campbell; L. A. Baker; R. M. Crooks; M. George "Z-Scan Measurement of the Nonlinear Absorption of a Thin Gold Film" *J. Appl. Phys.* **1999**, *86*, 6200-6205.
100. D. L. Dermody; R. M. Crooks; Y. Lee; T. Kim "Synthesis, Characterization, and Chemical Sensitivity of Self-Assembled Polydiacetylene/Upper-Rim-Modified Calix[4]arene Bilayers" *Langmuir* **1999**, *15*, 8435-8440.
99. M. Zhao; R. M. Crooks "Intradendrimer Exchange of Metal Nanoparticles" *Chem. Mater.* **1999**, *11*, 3379-3385.
98. P. Cool; A. Clearfield; R. M. Crooks; E. F. Vansant "The Development of Microporous Pillared Layered Materials for Volatile Organic Compound Adsorption and N<sub>2</sub>/O<sub>2</sub> Separation" *Adv. Environ. Res.* **1999**, *3*, 139-151.
97. W. M. Lackowski; J. G. Franchina; D. E. Bergbreiter; R. M. Crooks "An Atomic Force Microscopy Study of the Surface Morphology of Hyperbranched Poly(Acrylic Acid) Thin Films" *Adv. Mater.* **1999**, *11*, 1368-1371.
96. A. Aoki, P. Ghosh, R. M. Crooks "Micrometer-Scale Patterning of Multiple Dyes on Hyperbranched Polymer Thin Films using Photoacid-based Lithography" *Langmuir* **1999**, *15*, 7418-7421.
95. W. M. Lackowski; J. K. Campbell; G. Edwards; V. Chechik; R. M. Crooks "Time-Dependent Phase Segregation of Dendrimer/*n*-Alkylthiol Mixed-Monolayers on Au(111): An Atomic Force Microscopy Study" *Langmuir* **1999**, *15*, 7632-7638.
94. L. A. Baker; F. P. Zamborini; L. Sun; R. M. Crooks "Dendrimer-Mediated Adhesion between Vapor-Deposited Gold and Glass or Si Wafers" *Anal. Chem.* **1999**, *71*, 4403-4406.
93. V. Chechik; R. M. Crooks "Monolayers of Thiol-terminated Dendrimers on the Surface of Planar and Colloidal Gold" *Langmuir*, **1999** *15*, 6364-6369.
92. P. Ghosh; R. M. Crooks "Covalent Grafting to a Patterned, Hyperbranched Polymer onto a Plastic Substrate Using Microcontact Printing" *J. Am. Chem. Soc.* **1999**, *121*, 8395-8396.
91. R. D. Harris; W. S. Baker; M. J. Van Stipdonk; R. M. Crooks; E. A. Schweikert "Secondary Ion Yields Produced by keV Atomic and Polyatomic Ion Impacts on a Self-Assembled Monolayer Surface" *Rapid Comm. Mass. Spectrom.* **1999**, *13*, 1374-1380.
90. J. G. Franchina; W. M. Lackowski; D. L. Dermody; R. M. Crooks; D. E. Bergbreiter; K. Sirkar; R. J. Russell; M. V. Pishko "Electrostatic Immobilization of Glucose Oxidase in a Weak-acid, Polyelectrolyte Hyperbranched Ultra-thin Film on Gold: Fabrication, Characterization, and Enzymatic Activity" *Anal. Chem.* **1999**, *71*, 3133-3139.
89. P. Ghosh; M. L. Amirpour; W. M. Lackowski; M. V. Pishko; R. M. Crooks "A Simple Lithographic Approach for Preparing Patterned, Micron-Scale Corrals for Controlling Cell Growth" *Angew. Chem. Int. Ed.* **1999**, *38*, 1592-1595; *Angew. Chem.* **1999**, *111*, 1697-1700.

88. V. Chechik; M. Zhao; R. M. Crooks "Self-Assembled Inverted Micelles Prepared from a Dendrimer Template: Phase Transfer of Encapsulated Guests" *J. Am. Chem. Soc.* **1999**, *121*, 4910-4911.
87. J. K. Campbell; L. Sun; R. M. Crooks "Electrochemistry using Single Carbon Nanotubes" *J. Am. Chem. Soc.* **1999**, *121*, 3779-3780.
86. M. Zhao; R. M. Crooks "Dendrimer-Encapsulated Pt Nanoparticles: Synthesis, Characterization, and Applications to Catalysis" *Adv. Mater.* **1999**, *11*, 217-220.
85. W. M. Lackowski; P. Ghosh; R. M. Crooks "Micron-scale Patterning of Hyperbranched Polymer Films by Micro-Contact Printing" *J. Am. Chem. Soc.* **1999**, *121*, 1419-1420.
84. M. Zhao; Y. Liu; R. M. Crooks; D. E. Bergbreiter "Preparation of Highly Impermeable Hyperbranched -Polymer Thin Film Coatings Using Dendrimers First as Building Blocks and then as In-situ Thermosetting Agents" *J. Am. Chem. Soc.* **1999**, *121*, 923-930.
83. D. L. Dermody; R. F. Peez; D. E. Bergbreiter; R. M. Crooks "Chemically Grafted Polymeric Filters for Chemical Sensors: Hyperbranched Poly(acrylic Acid) Films Incorporating  $\beta$ -Cyclodextrin Receptors and Amine-Functionalized Filter Layers" *Langmuir* **1999**, *15*, 885-890.
82. L. Sun; R. M. Crooks "Fabrication and Characterization of Single Pores for Modeling Mass Transport Across Porous Membranes" *Langmuir* **1999**, *15*, 738-741.
81. M. Zhao; R. M. Crooks "Homogeneous Hydrogenation Catalysis using Monodisperse, Dendrimer-Encapsulated Pd and Pt Nanoparticles" *Angew. Chem. Int. Ed.* **1999**, *38*, 364-366; *Angew. Chem.* **1999**, *111*, 375-377.
80. M. E. Garcia; L. A. Baker; R. M. Crooks "Preparation and Characterization of Dendrimer-Gold Colloid Nanocomposites" *Anal. Chem.* **1999**, *71*, 256-258.
79. W. S. Baker; R. M. Crooks "Independent Geometrical and Electrochemical Characterization of Arrays of Nanometer-Scale Electrodes" *J. Phys. Chem. B* **1998**, *102*, 10041-10046.
78. F. P. Zamborini; R. M. Crooks "Nanometer-Scale Patterning of Metals by Electrodeposition from an STM Tip in Air" *J. Am. Chem. Soc.* **1998**, *120*, 9700-9701.
77. R. F. Peez; D. L. Dermody; J. G. Franchina; S. J. Jones; M. L. Bruening; D. E. Bergbreiter; R. M. Crooks "Aqueous Solvation and Functionalization of Weak-Acid, Polyelectrolyte Thin Films" *Langmuir* **1998**, *14*, 4232-4237.
76. M. Zhao; L. Sun; R. M. Crooks "Preparation of Cu Nanoclusters within Dendrimer Templates" *J. Am. Chem. Soc.* **1998**, *120*, 4877-4878.
75. H. Tokuhisa; M. Zhao; L. A. Baker; V. T. Phan; D. L. Dermody; M. E. Garcia; R. F. Peez; R. M. Crooks; T. M. Mayer "Preparation and Characterization of Dendrimer Monolayers and Dendrimer-Alkylthiol Mixed Monolayers Adsorbed to Gold" *J. Am. Chem. Soc.* **1998**, *120*, 4492-4501.
74. A. Hierlemann; J. K. Campbell; L. A. Baker; R. M. Crooks; A. J. Ricco "Structural Distortion of Dendrimers on Gold Surfaces: A Tapping-Mode AFM Investigation" *J. Am. Chem. Soc.* **1998**, *120*, 5323-5324.

73. F. P. Zamborini; R. M. Crooks "Corrosion Passivation of Gold by *n*-Alkylthiol Self-Assembled Monolayers: The Effect of Chain Length and End Group" *Langmuir* **1998**, *14*, 3279-3286.
72. F. P. Zamborini; J. K. Campbell; R. M. Crooks "Spectroscopic, Voltammetric, and Electrochemical Scanning Tunneling Microscopic Study of Underpotentially Deposited Cu Corrosion and Passivation with Self-Assembled Organomercaptan Monolayers" *Langmuir* **1998**, *14*, 640-647.
71. A. J. Ricco; R. M. Crooks; G. C. Osbourn "SAW Chemical Sensor Arrays: New Chemically Sensitive Interfaces Combined with Novel Cluster Analysis to Detect Volatile Organic Compounds and Mixtures" *Acc. Chem. Res.* **1998**, *31*, 289-296.
70. R. M. Crooks; A. J. Ricco "New Organic Materials Suitable for Use in Chemical Sensor Arrays" *Acc. Chem. Res.* **1998**, *31*, 219-227.
69. R. M. Crooks; H. C. Yang; L. J. McEllistrem; R. C. Thomas; A. J. Ricco "Interactions between Self-Assembled Monolayers and an Organophosphonate: A Detailed study Using Surface Acoustic Wave-Based Mass Analysis, Polarization Modulation-FTIR Spectroscopy, and Ellipsometry" *Disc. Faraday Soc.* **1997**, *107*, 285-305.
68. Y. Liu; M. Zhao; D. E. Bergbreiter; R. M. Crooks "pH-Switchable, Ultrathin Permselective Membranes Prepared from Multilayer Polymer Composites" *J. Am. Chem. Soc.* **1997**, *119*, 8720-8721.
67. A. J. Ricco; A. W. Staton; R. M. Crooks; T. Kim "Single-Monolayer *In-Situ* Modulus Measurements using a SAW Device: Photocrosslinking of a Diacetylenic Thiol-Based Monolayer" *Disc. Faraday Soc.* **1997**, *107*, 247-258.
66. H. Tokuhisa; R. M. Crooks "Interactions between Organized, Surface-Confined Monolayers and Vapor-Phase Probe Molecules. 12. Two New Methods for Surface-Immobilization and Functionalization of Chemically Sensitive Dendrimer Surfaces" *Langmuir* **1997**, *13*, 5608-5612.
65. M. Zhao; H. Tokuhisa; R. M. Crooks "Interactions Between Organized, Surface-Confined Monolayers and Liquid-Phase Probe Molecules. 5. Molecule-Sized Gates Based on Surface-Confined Dendrimers" *Angew. Chem. Int. Ed. Engl.* **1997**, *36*, 2596-2598; *Angew. Chem.* **1997**, *109*, 2708-2710.
64. M. Zhao; M. L. Bruening; Y. Zhou; D. E. Bergbreiter; R. M. Crooks "Effect of pH, Fluorination, and Number of Layers on the Inhibition of Electrochemical Reactions by Grafted, Hyperbranched Poly(acrylic acid) Films" *Isr. J. Chem.* **1997**, *37*, 277-286.
63. Y. Liu; M. L. Bruening; D. E. Bergbreiter; R. M. Crooks "Multilayer Dendrimer-Poly(anhydride) Composite Films on Glass, Silicon, and Gold Wafers" *Angew. Chem. Int. Ed. Engl.* **1997**, *36*, 2114-2116; *Angew. Chem.* **1997**, *109*, 2204-2207.
62. M. Zhao; Y. Zhou; M. L. Bruening; D. E. Bergbreiter; R. M. Crooks "Inhibition of Electrochemical Reactions at Gold Surfaces by Grafted, Highly Fluorinated Hyperbranched Polymer Films" *Langmuir* **1997**, *13*, 1388-1391.
61. M. L. Bruening; Y. Zhou; G. Aguilar; R. Agee; D. E. Bergbreiter; R. M. Crooks "Synthesis and Characterization of Surface-Grafted, Hyperbranched Polymer Films Containing Fluorescent, Hydrophobic, Ion-Binding, Biocompatible, and Electroactive Groups" *Langmuir* **1997**, *13*, 770-778.

60. P. Cool; A. Clearfield; V. Mariagnanam; L. J. McEllistrem; R. M. Crooks; E. F. Vansant "Self-Assembly of Al-Pillared Clay on a Gold Support" *J. Mater. Chem.* **1997**, 7, 443-448.
59. F. P. Zamborini; R. M. Crooks "In-Situ Electrochemical Scanning Tunneling Microscopy (ECSTM) Study of Cyanide-Induced Corrosion of Naked and Hexadecyl Mercaptan-Passivated Au(111)" *Langmuir* **1997**, 13, 122-126.
58. T. Wade; C. B. Ross; R. M. Crooks "Electrochemical Synthesis of Ceramic Materials. 5. An Electrochemical Method Suitable for the Preparation of Nine Metal Nitrides" *Chem. Mater.* **1997**, 9, 248-254.
57. T. Kim; K. C. Chan; R. M. Crooks "Polymeric Self-Assembled Monolayers. 4. Chemical, Electrochemical, and Thermal Stability of  $\omega$ -Functionalized, Self-Assembled Diacetylenic and Polydiacetylenic Monolayers" *J. Am. Chem. Soc.* **1997**, 119, 189-193.
56. J. K. Schoer; R. M. Crooks "Scanning Probe Lithography. 4. Characterization of Scanning Tunneling Microscope-Induced Patterns in *n*-Alkanethiol Self-Assembled Monolayers" *Langmuir* **1997**, 13, 2323-2332.
55. T. Kim; K. C. Chan; R. M. Crooks; Q. Ye; L. Sun "Polymeric Self-Assembled Monolayers. 5. Synthesis and Characterization of  $\omega$ -Functionalized, Self-Assembled Diacetylenic and Polydiacetylenic Monolayers" *Langmuir* **1996**, 12, 6065-6073.
54. Y. Zhou; M. L. Bruening; Y. Liu; R. M. Crooks; D. E. Bergbreiter "Synthesis of Hyperbranched, Hydrophilic Fluorinated Surface Grafts" *Langmuir* **1996**, 12, 5519-5521.
53. D. L. Dermody; R. M. Crooks; T. Kim "Interactions between Organized, Surface-Confined Monolayers and Vapor-Phase Probe Molecules. 11. Synthesis, Characterization, and Chemical Sensitivity of a Polydiacetylene/Calix[n]arene Bilayer" *J. Am. Chem. Soc.* **1996**, 118, 11912-11917.
52. J. K. Schoer; F. P. Zamborini; R. M. Crooks "Scanning Probe Lithography. 3. Nanometer-Scale Electrochemical Patterning of Au and Organic Resists in the Absence of Intentionally Add Solvents or Electrolytes" *J. Phys. Chem.* **1996**, 100, 11086-11091.
51. M. Wells; R. M. Crooks "Interactions between Organized, Surface-Confined Monolayers and Vapor-Phase Probe Molecules. 10. Preparation and Properties of Chemically Sensitive Dendrimer Surfaces" *J. Am. Chem. Soc.* **1996**, 118, 3988-3989.
50. Y. Zhou; M. L. Bruening; D. E. Bergbreiter; R. M. Crooks; M. Wells "Preparation of Hyperbranched Polymer Films Grafted on Self-Assembled Monolayers" *J. Am. Chem. Soc.* **1996**, 118, 3773-3774.
49. M. Wells; D. L. Dermody; H. C. Yang; T. Kim; R. M. Crooks; A. J. Ricco "Interactions between Organized, Surface-Confined Monolayers and Vapor-Phase Probe Molecules. 9. Structure/Reactivity Relationship between Three Surface-Confined Isomers of Mercaptobenzoic Acid and Vapor-Phase Decylamine" *Langmuir* **1996**, 12, 1989.
48. T. Wade; R. M. Crooks "Electrochemical Synthesis of Ceramic Materials. 4. Electrophoretic Deposition of Metal-Nitride Ceramic Precursors" *Chem. Mater.* **1996**, 8, 832.
47. H. C. Yang; D. L. Dermody; C. Xu; A. J. Ricco; R. M. Crooks "Molecular Interactions Between Organized, Surface-Confined Monolayers and Vapor-Phase Probe Molecules. 8.

Reactions Between Acid-Terminated Self-Assembled Monolayers and Vapor-Phase Bases" *Langmuir* **1996**, *12*, 726.

46. R. C. Thomas; H. C. Yang; C. R. DiRubio; A. J. Ricco; R. M. Crooks "Chemically Sensitive Surface Acoustic Wave Devices Employing a Self-Assembled Composite Monolayer Film: Molecular Specificity and Effects Due to Self-Assembled Monolayer Adsorption Time and Gold Surface Morphology" *Langmuir* **1996**, *12*, 2239-2246.
45. A. E. Hoyt; A. J. Ricco; H. C. Yang; R. M. Crooks "Speciation of Linear and Branched Hydrocarbons by a Fluorinated Polyimide Film-Based SAW Sensor" *J. Am. Chem. Soc.* **1995**, *117*, 8672.
44. K. C. Chan; T. Kim; J. K. Schoer; R. M. Crooks "Polymeric Self-Assembled Monolayers. 3. Pattern Transfer by Use of Photolithography, Electrochemical Methods, and an Ultrathin, Self-Assembled Diacetylenic Resist" *J. Am. Chem. Soc.* **1995**, *117*, 5875.
43. T. Kim; R. M. Crooks; M. Tsen; L. Sun "Polymeric Self-Assembled Monolayers. 2. Synthesis and Characterization of Self-Assembled Polydiacetylene Mono- and Multilayers" *J. Am. Chem. Soc.* **1995**, *117*, 3963-3967.
42. R. C. Thomas; T. Kim; R. M. Crooks; J. E. Houston; T. A. Michalske "Probing Adhesion Forces at the Molecular Scale" *J. Am. Chem. Soc.* **1995**, *117*, 3830-3834.
41. O. Chailapakul; R. M. Crooks "Interactions Between Organized, Surface-Confined Monolayers and Liquid-Phase Probe Molecules. 4. Synthesis and Characterization of Nanoporous Molecular Assemblies: Mechanism of Probe Penetration" *Langmuir* **1995**, *11*, 1329-1340.
40. T. A. Jones; G. P. Perez; B. J. Johnson; R. M. Crooks "Interactions Between Organized, Surface-Confined Monolayers and Liquid-Phase Probe Molecules. 3. Fundamental Aspects of the Binding Interaction Between Charged Probe Molecules and Organomercaptan Monolayers" *Langmuir* March, **1995**, *11*, 1318.
39. Y.-Q. Li; O. Chailapakul; R. M. Crooks "An Electrochemical Scanning Tunneling Microscopy Study of the Electrochemical Behavior of Naked and *n*-Alkanethiol-Modified Au(111) Surfaces in F<sup>-</sup> and CN<sup>-</sup> Containing Electrolyte Solutions" *J. Vac. Sci. Technol. B.* **1995**, *13*, 1300.
38. T. Kim; R. M. Crooks "Polymeric Self-Assembling Monolayers. 1. Synthesis and Characterization of  $\omega$ -Functionalized *n*-Alkanethiols Containing a Conjugated Diacetylene Group" *Tetrahedron Lett.* **1994**, *35*, 9501.
37. R. C. Thomas; P. Tangyonyong; J. E. Houston; T. A. Michalske; R. M. Crooks "Chemically Sensitive Interfacial Force Microscopy: Contact Potential Measurements of Self-Assembling Monolayer Films" *J. Phys. Chem.* **1994**, *98*, 4493.
36. T. Wade; E. G. Garza; D. M. Smith; R. M. Crooks; J. O. Willis; J. Y. Coulter "Electrochemical Synthesis of Ceramic Materials. 3. Synthesis and Characterization of a Niobium Nitride Precursor and Niobium Nitride Powder" *Chem. Mater.* **1994**, *6*, 87.
35. P. Tangyonyong; R. C. Thomas; J. E. Houston; T. A. Michalske; R. M. Crooks; A. J. Howard "Substrate Effects on the Nanometer-Scale Mechanics of Gold Films" *J. Adhes. Sci. Technol.* **1994**, *8*, 897.



34. O. Chailapakul; L. Sun; C. Xu; R. M. Crooks "Interactions Between Organized, Surface-Confined Monolayers and Vapor-Phase Probe Molecules. 7. Comparison of Self-Assembling Organomercaptan Monolayers Deposited on Gold from Liquid and Vapor Phases" *J. Am. Chem. Soc.* **1993**, *115*, 12459.
33. J. K. Schoer; C. B. Ross; R. M. Crooks; T. S. Corbitt; M. J. Hampden-Smith "Scanning Probe Lithography. 2. Selective Chemical Vapor Deposition of Copper into Scanning Tunneling Microscope-Defined Patterns" *Langmuir* **1994**, *10*, 615.
32. R. M. Crooks; L. Sun; C. Xu; S. L. Hill; A. J. Ricco "The Characterization of Organic Monolayers by Fourier Transform Infrared External Reflection Spectroscopy" *Spectroscopy* **1993**, *8*, 28-39.
31. T. S. Corbitt; R. M. Crooks; M. J. Hampden-Smith; C. B. Ross; J. K. Schoer "Scanning Probe Surface Modification" *Adv. Mater.* **1993**, *5*, 930.
30. P. Tangyonyong; R. C. Thomas; J. E. Houston; T. A. Michalske; R. M. Crooks; A. J. Howard "The Nanometer-Scale Mechanics of Gold Films" *Phys. Rev. Lett.* **1993**, *71*, 3319.
29. L. Sun; R. M. Crooks "Indirect Visualization of Defect Structures Contained within Self-Assembled Organomercaptan Monolayers: Combined Use of Electrochemistry and Scanning Tunneling Microscopy" *Langmuir* **1993**, *9*, 1951.
28. C. Xu; L. Sun; L. J. Kepley; R. M. Crooks; A. J. Ricco "Molecular Interactions Between Organized, Surface-Confined Monolayers and Vapor-Phase Probe Molecules. 6. *In-situ* FTIR-External Reflectance Spectroscopy of Monolayer Adsorption and Reaction Chemistry" *Anal. Chem.* **1993**, *65*, 2102.
27. L. Sun; R. M. Crooks; A. J. Ricco "Molecular Interactions Between Organized, Surface-Confined Monolayers and Vapor-Phase Probe Molecules. 5. Acid-Base Interactions" *Langmuir* **1993**, *9*, 1775.
26. C. B. Ross; L. Sun; R. M. Crooks "Scanning Probe Lithography. 1. Scanning Tunneling Microscope-Induced Lithography of Self-Assembled *n*-Alkanethiol Monolayer Resists" *Langmuir* **1993**, *9*, 632-636.
25. M. A. Bryant; R. M. Crooks "Determination of Surface pK<sub>a</sub> Values of Surface-Confined Molecules Derivatized with pH-Sensitive Pendant Groups" *Langmuir* **1993**, *9*, 388.
24. R. C. Thomas; J. E. Houston; T. A. Michalske; R. M. Crooks "The Mechanical Response of Gold Substrates Passivated with Self-Assembling Monolayer Films" *Science* **1993**, *259*, 1883-1885.
23. C. T. Hable; R. M. Crooks; J. R. Valentine; R. Giasson; M. S. Wrighton "Charge Trapping by Anionic Quinones Electrostatically Bound to a Highly Charged Cationic Quinone-Viologen Polymer or a Cationic Poly(3-viologen-thiophene)" *J. Phys. Chem.* **1993**, *97*, 6060.
22. O. Chailapakul; R. M. Crooks "Synthesis and Characterization of Simple Self-Assembling, Nanoporous Monolayer Assemblies: A New Strategy for Molecular Recognition" *Langmuir* **1993**, *9*, 884-888.
21. Y. Zhang; N. Raman; J. K. Bailey; C. J. Brinker; R. M. Crooks "A New Sol-Gel Route for the Preparation of Nanometer-Scale Semiconductor Particles that Exhibit Quantum Optical Behavior" *J. Phys. Chem.* **1992**, *96*, 9098.

20. T. Wade; J. Park; E. G. Garza; C. B. Ross; D. M. Smith and R. M. Crooks "Electrochemical Synthesis of Ceramic Materials, 2. Synthesis of AlN and an AlN Polymer Precursor: Chemistry and Materials Characterization" *J. Am. Chem. Soc.* **1992**, *114*, 9457.
19. L. J. Kepley; R. M. Crooks; A. J. Ricco "Selective Surface Acoustic Wave-Based Organophosphonate Chemical Sensor Employing a Self-Assembled, Composite Monolayer: A New Paradigm for Sensor Design" *Anal. Chem.* **1992**, *64*, 3191.
18. L. Sun; L. J. Kepley, and R. M. Crooks "Molecular Interactions Between Organized, Surface-Confined Monolayers and Vapor-Phase Probe Molecules: Hydrogen Bonding Interactions" *Langmuir* **1992**, *8*, 2101.
17. S. A. Joyce; R. C. Thomas; J. E. Houston; T. A. Michalske; R. M. Crooks "Mechanical Relaxation of Organic Monolayer Films Measured by Force Microscopy" *Phys. Rev. Lett.* **1992**, *68*, 2790.
16. L. Sun; R. C. Thomas; R. M. Crooks; A. J. Ricco "Real-Time Analysis of Chemical Reactions Occurring at a Surface-Confined Organic Monolayer" *J. Am. Chem. Soc.* **1991**, *113*, 8550.
15. L. Sun; R. M. Crooks "Imaging of Defects Contained within *n*-Alkylthiol Monolayers by Combination of Underpotential Deposition and Scanning Tunneling Microscopy: Kinetics of Self-Assembly" *J. Electrochem. Soc.* **1991**, *138*, L23-L25.
14. C. B. Ross; T. Wade; R. M. Crooks; D. G. Smith "Electrochemical Synthesis of Metal Nitride Ceramics and Ceramic Precursors in Liquid Ammonia Electrolyte Solutions" *Chem. Mater.* **1991**, *3*, 768-771.
13. R. C. Thomas; L. Sun; A. J. Ricco; R. M. Crooks "Real-Time Measurements of Gas-Phase Adsorption of *n*-Alkylthiol and Dialkyl Disulfide Mono- and Multilayers on Gold" *Langmuir* **1991**, *7*, 620.
12. L. Sun; B. Johnson; T. Wade; R. M. Crooks "Selective Electrostatic Binding of Ions by Monolayers of Mercaptan Derivatives Adsorbed to Au Substrates" *J. Phys. Chem.* **1990**, *94*, 8869.
11. Ofer; R. M. Crooks; M. S. Wrighton "Potential Dependence of the Conductivity of Highly Oxidized Polythiophenes, Polypyrroles, and Polyaniline: Observation of Finite Potential Windows of High Conductivity" *J. Am. Chem. Soc.* **1990**, *112*, 7869.
10. V. Cammarata; D. R. Talham; R. M. Crooks; M. S. Wrighton "Use of Microelectrode Arrays to Directly Measure Diffusion of Ions in Solid Electrolytes: Physical Diffusion of Ag<sup>+</sup> in a Solid Polymer Electrolyte" *J. Phys. Chem.* **1990**, *94*, 2680.
9. Albagli; R. Ballinger; V. Cammarata; X. Chen; R. M. Crooks; C. Fiore; M. J. P. Gaudreau; I. Hwang; C. K. Li; P. Linsay; S. C. Luckhardt; R. R. Parker; R. D. Petrasso; M. O. Schlögl; K. W. Wenzel; M. S. Wrighton "Measurement and Analysis of Neutron and Gamma Ray Emission Rates, Other Fusion Products, and Power in Electrochemical Cells Having Pd Cathodes" *J. Fusion Energy* **1990**, *9*, 133.
8. P. He; R. M. Crooks; L. R. Faulkner "Adsorption and Electrode Reactions of Disulfonated Anthraquinones at Mercury Electrodes" *J. Phys. Chem.* **1990**, *94*, 1135.

7. Hable; R. M. Crooks; M. S. Wrighton "pH Dependent Charge-Trapping by Quinones Electrostatically Bound in a Surface-Confined Benylviologen Polymer" *J. Phys. Chem.* **1989**, *93*, 1190.
6. R. M. Crooks; O. M. R. Chyan; M. S. Wrighton "Potential Dependence of the Relative Conductivity of Poly (3-methylthiophene): Electrochemical Reduction in Acetonitrile and Ammonia" *Chem. Mater.* **1989**, *1*, 2.
5. R. M. Crooks; A. J. Bard "Electrochemistry in Near-Critical and Supercritical Fluids 6. The Electrochemistry of Ferrocene and Phenazine in Acetonitrile from 25 to 300 °C" *J. Electroanal. Chem.* **1988**, *243*, 117.
4. R. M. Crooks; A. J. Bard "Electrochemistry in Near-Critical and Supercritical Fluids 5. The Dimerization of Quinoline and Acridine Radical Anions and Dianions in Ammonia from -70 °C to 150 °C" *J. Electroanal. Chem.* **1988**, *240*, 253.
3. R. M. Crooks; A. J. Bard "Electrochemistry in Near-Critical and Supercritical Fluids 4. Nitrogen Heterocycles, Nitrobenzene, and Solvated Electrons in Ammonia at temperatures to 150 °C" *J. Phys. Chem.* **1987**, *91*, 1274.
2. R. M. Crooks; F-R. F. Fan; A. J. Bard "Electrochemistry in Near-Critical and Supercritical Fluids 1. Ammonia" *J. Am. Chem. Soc.* **1984**, *106*, 6851.
1. C-M. Che; L. G. Butler; H. B. Gray; R. M. Crooks; W. H. Woodruff "Metal-Metal Interactions in Binuclear Platinum (II) Diphosphite Complexes. Resonance Raman Spectra of the  $^1A_{1g}(ds^*)^2$  and  $^3A_{2u}(ds^*ps)$  Electronic States of  $Pt_2(P_2O_5H_2)_4^{4-}$ " *J. Am. Chem. Soc.* **1983**, *105*, 5492.

**Proceedings, Reviews, and Book Chapters** (not reviewed or 'lightly' reviewed)

34. J. C. Garcia-Martinez; O. M. Wilson; R. W. J. Scott; R. M. Crooks "Extraction of Metal Nanoparticles from within Dendrimer Templates" *In Metal-Containing and Metallo-supramolecular Polymers and Materials*, Ed. Schubert, U. S.; Newkome, G. R.; Manners, I., ACS Symposium Series 928, **2006**, 215-229.
33. M. Zhao; A. J. Ricco; U. Nguyen; R. M. Crooks; Q. Zhu "Functional and Efficient Electrode-Integrated Microfluidic Plastic Devices" *Micro Total Analysis Systems 2001, Proceedings  $\mu$ TAS 2001 Symposium, 5th, Monterey, CA, United States, Oct. 21-25, 2001 (2001)*, 193-194.
32. R. M. Crooks; V. Chechik; B. I. Lemon; L. Sun; L. K. Yeung; M. Zhao In "Synthesis, Characterization, and Applications of Dendrimer-Encapsulated Metal and Semiconductor Nanoparticles" *Metal Nanoparticles: Synthesis, Characterization, and Applications*, D. L. Feldheim; C. A. Foss, Jr., Eds. Dekker: New York, **2002**, pp 261-296.
31. G. P. Perez; R. M. Crooks "Selectively Permeable Dendrimers As Molecular Gates" *The Electrochemical Society Interface* **2001**, *10*, 34-38.
30. R. M. Crooks; B. I. Lemon; L. Sun; L. K. Yeung; M. Zhao "Dendrimer-Encapsulated Metals and Semiconductors: Synthesis, Characterization, and Applications" *Topics Curr. Chem.* **2000**, *212*, 81-135.

29. H. S. White; R. M. Crooks "Allen J. Bard, A Biography" *J. Phys. Chem. B* **1998**, *102*, 9746-9749. (a biography of Prof. Bard written for a special Festschrift issue).
28. R. M. Crooks; M. Zhao; H. Tokuhisa "Single Molecule Electrodes Based on Composite Dendrimer Monolayers" In *Single Molecule Electrodes Based on Composite Dendrimer Monolayers* Proceedings of the Electrochemical Society **1999**, 98-26, 194-207.
27. P. Ghosh; M.; W. Lackowski; M. Pishko, R. M. Crooks "A Simple Lithographic Approach for Preparing Patterned, Micron-Scale Corrals for Controlling Cell Growth" *Polym. Prepr.* **1999**, *40*, 423-424.
26. M. Zhao; L. Sun; R. M. Crooks "Dendrimer-Encapsulated Transition Metal Nanoclusters: Synthesis, Characterization, and Applications to Catalysis" *Polym. Prepr.* **1999**, 217.
25. A. J. Ricco; R. M. Crooks; J. Janata "Chemical Sensors: A perspective of the present and Future" *The Electrochem. Soc. Interface*, **1998**, *7*, 18-24. (review)
24. G. C. Osbourn; A. J. Ricco; J. W. Bartholomew; R. F. Martinez; M. E. Garcia; R. Peez; R. M. Crooks; R. Spindler; M. E. Kaiser "Dendrimer-Coated Arrays for Volatile Organic Detection: Array Size and Signal Degradation Effects" Technical Digest of the 1998 Solid-State Sensor and Actuator Workshop, Hilton Head Isl., SC, June 1998, Transducer Research Foundation, Cleveland, 1996.
23. D. E. Bergbreiter; R. M. Crooks; D. L. Dermody; S. J. Jones; Y. Liu; J. G. Franchina; M. L. Bruening; Y. Zhou; M. Zhao "Hydration and Permeation in Hyperbranched- and Dendrimer-Based Thin Films" *Polym. Mater. Sci. Eng.* **1998**, *79*, 444.
22. J. G. Franchina; D. L. Dermody; R. Peez; S. J. Jones; D. E. Bergbreiter; M. L. Bruening; R. M. Crooks "Hyperbranched Grafting on a Gold Surface: Investigation of pH Responsiveness" *Polym. Mater. Sci. Eng.* **1998**, *78*, 1-2.
21. D. E. Bergbreiter; R. M. Crooks; M. L. Bruening; Y. Zhou; Y. Liu; G. Aguilar; M. Zhao "Thin Hyperbranched Films Grafted to Gold, Silicon, and Aluminum" *Polym. Prepr. (Am. Chem. Soc., Div. Polym. Chem.)* **1997**, *38*, 943-944.
20. H. Tokuhisa; R. Peez; D. L. Dermody; R. M. Crooks; T. Kim; A. J. Ricco; G. C. Osbourn "Interfacial Design for Chemical Sensor Arrays" *Photochem. Photobiol.* **1997**, *65*, 96S.
19. R. C. Thomas; A. J. Ricco; C. R. DiRubio; H. C. Yang; R. M. Crooks "Chemical Class Specificity Using Self-Assembled Monolayers on SAW Devices: Effects of Adsorption Time and Substrate Grain Size" *Proc. – Electrochem. Soc.*, **1997**, *19*, 202-211.
18. H. Tokuhisa; R. M. Crooks; A. J. Ricco; G. C. Osbourn "Chemical Sensors Based on Surface-Confined Dendrimers" *Proc. – Electrochem. Soc.*, **1997**, *19*, 134-140.
17. M. L. Bruening; Y. Zhou; M. Zhao; R. M. Crooks; D. E. Bergbreiter "Surface-Grafted, Hyperbranched Poly(acrylic acid) Films: New Interfaces Relevant to Sensing and Anti-Corrosion Applications" *Polym. Mater. Sci. Eng.* **1997**, *77*, 77-78.
16. J. E. Houston; T. A. Michalske; R. M. Crooks "Interfacial Adhesion at the Molecular Level" *Proc. Annu. Meet. Adhes. Soc.* **1997**, *20*, 31-33.
15. R. C. Thomas; J. E. Houston; R. M. Crooks; T. Kim; T. A. Michalske "Probing Adhesion Forces at the Molecular Scale" Proceedings of the 19th Annual Meeting of the Adhesion Society, Myrtle Beach, SC, February 1996, The Adhesion Society, Blacksburg, VA, 1996; p 13.

14. R. M. Crooks; D. E. Bergbreiter; M. L. Bruening; M. Wells; Y. Zhou; A. J. Ricco; G. C. Osbourn "Versatile Materials for use as Chemically Sensitive Interfaces in SAW-based Sensor Arrays" Technical Digest of the 1996 Solid-State Sensor and Actuator Workshop, Hilton Head Isl., SC, June 1996, Transducer Research Foundation, Cleveland, 1996.
13. R. C. Thomas; A. J. Ricco; H. C. Yang; D. Dermody; R. M. Crooks "Chemical Class Specificity using Self-Assembled Monolayers on SAW Devices" Technical Digest of the 1996 Solid-State Sensor and Actuator Workshop, Hilton Head Isl., SC, June 1996, Transducer Research Foundation, Cleveland, 1996.
12. T. Wade; R. M. Crooks "A Simple Electrochemical Method for the Preparation of Nine Metal-Nitride Ceramics" In *Covalent Ceramics III: Science and Technology of Non-Oxides* (Materials Research Society Proceedings, Volume 410), Materials Research Society: Pittsburgh, PA, 1996; p. 121.
11. R. M. Crooks "Electrochemistry" *J. Am. Chem. Soc.* **1994**, *116*, 11628. (Book review).
10. R. M. Crooks "Cold Fusion Revisited" *Science* **1994**, *263*, 105. (Book review).
9. T. A. Michalske; J. Houston; P. Tangyunyong; R. C. Thomas; R. M. Crooks; S. A. Joyce "Mechanical Relaxations in Self-Assembled Organic Films Measured by Force Microscopy" *Polym. Prepr.* **1993**, *34*, 292.
8. A. J. Ricco; R. M. Crooks; C. Xu; R. E. Allred "Chemically Sensitive Interfaces on SAW Devices" In *Interfacial Design and Chemical Sensing*; T. E. Mallouk; D. J. Harrison, Eds; ACS Symposium Series 561; American Chemical Society: Washington, D. C., 1994; Chapter 23.
7. R. M. Crooks; O. Chailapakul; C. B. Ross; L. Sun; J. K. Schoer "Synthesis and Characterization of Two-Dimensional Molecular Recognition Interfaces" In *Interfacial Design and Chemical Sensing*; T. E. Mallouk; D. J. Harrison, Eds; ACS Symposium Series 561; American Chemical Society: Washington, D. C., 1994; Chapter 10.
6. Y. Zhang; J. K. Bailey; C. J. Brinker; N. Raman; R. M. Crooks; C. S. Ashley "Quantum Confinement in Controlled-Pore Films" In *Proc. SPIE-Int. Soc. Opt. Eng.*; J. D. Mackenzie, Ed.; 1758 (Sol-Gel Opt. II); S.P.I.E.: San Diego, CA, 1992; pp 596-603.
5. Y. Zhang; C. J. Brinker; R. M. Crooks "Electrophoretic Deposition of Sol-Gel-Derived Ceramic Coatings" In *Better Ceramics Through Chemistry V*, M. J. Hampden-Smith; W. G. Klemperer; C. J. Brinker, Eds.; Materials Research Society: Pittsburgh, PA, 1992; p 465.
4. T. Wade; J. Park; E. Garza; C. B. Ross; D. M. Smith and R. M. Crooks "Electrochemical Synthesis of Aluminum Nitride in Liquid Ammonia Electrolyte Solutions" In *Better Ceramics Through Chemistry V*, M. J. Hampden-Smith; W. G. Klemperer; C. J. Brinker, Eds.; Materials Research Society: Pittsburgh, PA, 1992; p 857.
3. A. J. Ricco; L. J. Kepley; R. C. Thomas; L. Sun; R. M. Crooks "Self-Assembling Monolayers on SAW Devices for Selective Chemical Detection" *IEEE Solid-State Sensor and Actuator Workshop Technical Digest*, Hilton Head Island, SC, 21-25 June, 1992, IEEE: New York, 1992.
2. D. R. Talham; R. M. Crooks; V. Cammarata; N. Leventis; M. O. Schloh; M. S. Wrighton "Solid State Microelectrochemical Devices: Transistor and Diode Devices Elyte" Proceedings of the NATO ASI on Lower-Dimensional Systems and Molecular Electronics,

R. M. Metzger; P. Day; G. Papavassiliou, Eds., NATO ASI Series, Plenum: New York, 1991, p. 657-664.

1. M. S. Wrighton; G. T. R. Palmore; C. T. Hable; R. M. Crooks "Multi-Component Redox Materials for Charge-Trapping: pH-Dependent 'Rectification' Using Viologen/Quinone Systems", In *New Aspects of Organic Chemistry I; Proc. Int. Kyoto Conf., 4th*, **1989**, 277-302.

### News Items Highlighting Group Research

12. "Replicating DNA Microarrays" *Anal. Chem.* **2006**, 78, 2869 (1 May, 2006).
11. "Chemistry: On the Face of It" *Science*, **2006**, 311, 1837 (31 March, 2006).
10. "Electrochemical Microfluidic Circuits" *Anal. Chem.* **2003**, 75, 409A (1 October, 2006).
9. "It's Only Logical" *Chem. Eng. News* **2003**, 81 (35), 30.
8. Dendrimer-Encapsulated Catalysts are Recyclable" *Chem. Eng. News* **2000**, 78 (8), 8.
7. "Nanotube Electrode" *Anal. Chem.* **1999**, 71(13), 436A.
6. "Digging Deeper" *New Scientist* **1999**, 162, 21.
5. "Buckytube Electrodes for Electrochemistry" *Chem. Eng. News* **1999**, 77(17), 23.
4. "Jewel-Studded Molecular Trees" *Chem. Eng. News* **1999**, 77(6), 33-36.
3. "Starburst Cages for Catalysts" *Science* **1999**, 283, 165-166.
2. "Reach for the Starbursts" *Anal. Chem.* Aug. 1, **1998**, 503A.
1. "Chemists Explore Potential of Dendritic Macromolecules as Functional Materials" *Chem. Eng. News* June 3, **1996**, 30-38.

### Patents and Patent Applications

8. R. M. Crooks; T. Ito; L. Sun; J. Dai; R. Dhopeswarkar "System and Method for Electrokinetic Trapping and Concentration Enrichment of Analytes in a Microfluidic Channel" Provisional filed: 12 August, 2003; Conversion filed: 11 August, 2004. Publication date: 17 February, 2005. Publication No. US 2005/0034990 A1.
7. D. Albagli; L. Sun; R. M. Crooks "Photonic Signal Reporting of Electrochemical Events" CIP related to Patent 6 filed 22 July, 2003.
6. W. Zhan; J. Alvarez; R. M. Crooks "Electrochemical Sensing in Microfluidic Systems using Electrogenenerated Chemiluminescence as a Photonic Reporter of Electroactive Species" Filed 21 March, 2003. U. S. Patent Application Serial Number: 10/393,942.
5. L. Sun; R. M. Crooks "Method and Apparatus for Nanoparticle Transport and Detection", Filed 22 July, 2002. U. S. Patent No. US 7,077,939 B1 issued 18 July, 2006.
4. M. Zhao; A. J. Ricco; H. S. Lackritz; T. O. Bjornson; R. M. Crooks; D. Slomski; U. Nguyen; Z. Qun "Systemt Integration Using Electrically Conductive Ink to Print Electrodes on a Microfluidic Device; Reducing Bubble Formation by Coating Electrodes with Conductive Ink; Materials in Addition to Norbornene, w/ Associated Electrodes, Heaters, other Elements" Filed September 19, 2001; Published 28 March, 2002. PCT Application WO 02/24322.

3. M. Zhao; A. J. Ricco; H. S. Lackritz; T. O. Bjornson; R. M. Crooks; D. Slomski; U. Nguyen; Z. Qun "Norbornene (Zeonore) Materials; Associated Electrodes, Heaters, Other Elements". Filed September 19, 2000; Published 5 Sept. 2002. US Application 2002-0122747-A1.
2. R. M. Crooks; A. J. Ricco; M. Wells "Dendrimer Monolayer Films" U.S. Patent 6,312,809 B1 issued 6 November, 2001.
1. R. M. Crooks; T. Kim; K. C. Chan; J. K. Schoer "Polymeric Self-Assembled Mono- and Multilayers and Their Use in Photolithography" U.S. Patent No. US 5,885,753 issued 23 March, 1999.

## **INVITED PRESENTATIONS**

### **General Lectures**

3. Faulkner Nano Science and Technology Building dedication (The University of Texas at Austin, Austin, TX, October, 2011). "Inspiring Nanoscience"
2. Fall Banquet, Texas A&M University section of the ACS (Texas A&M University, College Station, TX, November, 2010). "What Exactly Happened with that Dang Kite Experiment on June 15, 1752?"
1. Fall Commencement Address, College of Natural Sciences (The University of Texas at Austin, Austin, TX, December, 2008) "Two Parables"

### **Lectureships**

6. Texas A&M University, Frontiers in Chemical Research (College Station, TX, October, 2011). Three lectures collectively titled "Electrocatalysis and Microanalysis"
5. Society for Analytical Chemists of Pittsburgh (Pittsburgh, PA, September, 2005). "Synthesis, Characterization, and Electrocatalysis using Dendrimer-Encapsulated Catalysts"
4. University of Utah (Salt Lake City, UT, November, 2002). Departmental colloquium. "Dendrimer-Encapsulated Nanoparticles: Synthesis, Characterization, and Applications to Catalysis"
3. University of Wyoming (Laramie, WY, July, 2000). Summer Seminar: five lectures collectively titled "Adventures in Nanotechnology".
2. Electrochemical Society, Chicago Section (Lisle, IL, December, 1997). "Interfacial Materials for Array-Based Chemical Sensors"
1. Senior Technical Meeting: ACS Puerto Rico Section (Lajas, Puerto Rico, November, 1995). "Chemical Sensors and Interfacial Design"

### **Plenary Lectures**

5. Smart Surfaces 2012: Solar and BioSensor Applications (Dublin, Ireland, March, 2012) "Self-Powered Biosensor Platforms Fabricated by Origami"

4. 13th Instrumental Analysis Conference (Barcelona, Spain, November, 2011) "Bipolar Electrodes: Fundamentals, Sensing, and Concentration Enrichment in Microelectrochemical Systems"
3. Third Meeting on Dendrimers (EDEN3) (Ciudad Real, Spain, February, 2011) "Synthesis of Core-Shell Dendrimer-Encapsulated Nanoparticles and Their Electrocatalytic Properties"
2. Simpósio Brasileiro de Eletroquímica e Eletroanalítica (SIBEE XVII) (Fortaleza, Brazil, April, 2009) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
1. Fifth International Society of Electrochemistry Spring Meeting (Dublin, Ireland, May, 2007) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticle"

### **Invited International Presentations**

32. University of Geneva (Geneva, Switzerland, June, 2011) "Sensing and Concentration Enrichment using Bipolar Electrodes"
31. Mátrafüred 2011 International Conference on Electrochemical Sensors (Dobogókö, Hungary, June, 2011) "Electrochemical Sensing Using Bipolar Electrodes"
30. Joint Meeting ElecNano<sup>4</sup> - 7<sup>th</sup> ECHEMS (Paris, France, May, 2011) "Core-Shell Dendrimer-Encapsulated Nanoparticles: Theory, Synthesis, Characterization, and Electrocatalysis"
29. The Hong Kong Polytechnic University (Hong Kong, December, 2007) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
28. Fifth International Dendrimer Symposium (Toulouse, France, August, 2007) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
27. MESA+ Institute for Nanotechnology & University of Twente (Twente, The Netherlands, June, 2007) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
26. University of Warwick (Warwick, UK, June, 2007) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
25. Second reunión de la División de Nanociencia y Nanotecnología (DINANO) de la Sociedad Mexicana de Física (SMF) (Vera Cruz, Mexico, May, 2007) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticle"
24. Workshop on Surface Reactivity and Nanocatalysis (Ebeltoft, Denmark, June, 2006) "Solution routes to nanoparticle synthesis"
23. Simon Fraser University (Victoria, BC, Canada, March, 2006) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
22. University of British Columbia (Vancouver, BC, Canada, March, 2006) "Synthesis,



Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"

21. University of Victoria (Victoria, BC, Canada, March, 2006) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
20. Université de Montréal (Montreal, December, 2005) "Synthesis, Characterization, and Catalytic Applications of 1-3 nm-Diameter Dendrimer-Encapsulated Nanoparticles"
19. McGill University (Montreal, December, 2005) "Synthesis, Characterization, and Catalytic Applications of 1-3 nm-Diameter Dendrimer-Encapsulated Nanoparticles"
18. Université du Québec à Montréal (Montreal, December, 2005) "Synthesis, Characterization, and Catalytic Applications of 1-3 nm-Diameter Dendrimer-Encapsulated Nanoparticles"
17. The 8th SPSJ International Polymer Conference (Fukuoka, Japan, July, 2005) "Dendrimer-Encapsulated Nanoparticles: Application to the Oxygen Reduction Reaction"
16. NATO Advanced Research Workshop on Nanocomposites for a Secure Society (Ouranopolis, Greece, May, 2005) "Analytical Applications of Single-Pore Membranes Based on Carbon Nanotubes"
15. Leopoldina Meeting (Heidelberg, Germany, March, 2005) "Dendrimer-Encapsulated Bimetallic Nanoparticles: Synthesis, Characterization, and Applications to Catalysis"
14. Kyoto University (Kyoto, Japan, February, 2004) "Dendrimer-Encapsulated Metal Nanoparticles: Synthesis, Characterization, and Catalysis"
13. The Second International Workshop on Microchemical Plants (Hyogo, Japan, February, 2004) "Electrochemical Detection and Photonic Reporting in a Microchemical System"
12. University of Alberta (Edmonton, Alberta, Canada, June, 2001) "Dendrimer-Encapsulated Nanoparticles: Applications to Catalysis"
11. First International Symposium on Integrated Molecular Systems (Pohang, Korea, February, 2001) "Dendrimer Encapsulated Nanoparticles: Synthesis, Properties, Catalysis, and Luminescence"
10. National Institute for Advanced Interdisciplinary Research (Tsukuba, Japan, February, 2001) "Dendrimer Encapsulated Nanoparticles: Synthesis, Properties, Catalysis, and Luminescence"
9. Second International Conference on Supramolecular Chemistry and Technology (Leuven, Belgium, September, 2000) "Dendrimer-Encapsulated Nanoparticles: Catalysis and Luminescence"
8. German-American Frontiers of Chemistry Symposium (Kloster Seeon, Germany).
7. Joint International Meeting of The Electrochemical Society, The Electrochemical Society of Japan, and the Japan Society of Applied Physics (Honolulu, HI, October, 1999) "Electrochemistry using Single Carbon Nanotubes and Applications to Scanning Electrochemical Microscopy"
6. Joint International Meeting of The Electrochemical Society, The Electrochemical Society of Japan, and the Japan Society of Applied Physics (Honolulu, HI, October, 1999) "Catalysis Using Dendrimer-Encapsulated Metal Nanoparticles"

5. International Society of Electrochemistry (Pavia, Italy, September, 1999) "Electrocatalysts Based on Dendrimer-Encapsulated, Nanoscopic Transition Metal Particles"
4. NATO Advanced Research Workshop on Supramolecular Science (La Spezia, Italy, September, 1998) "Dendrimer-Encapsulated Metal Nanoclusters for Heterogeneous and Homogeneous Catalysis"
3. First NIMC International Symposium on Photoreaction Control and Photofunctional Materials (Tsukuba, Japan, March, 1998) "Synthesis, Characterization, and Applications of Photopolymerizable Self-Assembled Monolayers"
2. University of Sheffield (Sheffield, UK, September, 1997) "Interfacial Design for Chemical Sensor Arrays"
1. Faraday Discussion No. 107 (Leicester, UK, September, 1997) "Interactions between Self-Assembled Monolayers and an Organophosphonate"

### **U. S. Colleges and Universities**

93. Notre Dame University (South Bend, IN, February, 2012) "Bipolar electrodes: concentration, separation and detection in microelectrochemical systems"
92. The University of Texas at San Antonio (San Antonio, TX, January, 2012) "Bipolar Electrodes: a Simple Modality for Concentration, Separation and Detection of Analytes in Microfluidic Channels"
91. University of Houston (Houston, TX, December, 2011) "Dendrimer-Encapsulated Nanoparticles: Synthesis, Characterization, and Electrocatalysis"
90. Arizona State University (Tempe, AZ, November, 2011) "Bipolar Electrodes: a Simple Modality for Concentration, Separation and Detection of Analytes in Microfluidic Channels"
89. Indiana University (Bloomington, IN, April, 2011) "Bipolar Electrodes: a Simple Modality for Concentration, Separation and Detection of Analytes in Microfluidic Channels"
88. University of Nebraska (Lincoln, NB, March, 2011) "Bipolar Electrodes: a Simple Modality for Concentration, Separation and Detection of Analytes in Microfluidic Channels"
87. University of North Texas (Denton, TX, March, 2011) "Bipolar Electrodes: a Simple Modality for Concentration, Separation and Detection of Analytes in Microfluidic Channels"
86. Rutgers University (New Brunswick, NJ, October, 2010) "Dendrimer-Encapsulated Nanoparticles: Synthesis, Characterization, and Electrocatalysis"
85. University of Illinois (Urbana, IL, April, 2010) "Bipolar Electrodes: a Simple Modality for Concentration, Separation and Detection of Analytes in Microfluidic Channels"
84. University of Pennsylvania (Philadelphia, PA, April, 2010) "Dendrimer-Encapsulated Nanoparticles: Synthesis, Characterization, and Electrocatalysis"
83. The University of Texas at Austin ACS Student Chapter (Austin, TX, February, 2010) "Catalytic Properties of Nanoparticles"

82. Texas State University (San Marcos, TX, November, 2009) "Bipolar electrodes: a simple means for concentration, separation and detection of analytes in microfluidic channels"
81. Cornell University (Ithaca, NY, October, 2009) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
80. University of Washington (Seattle, WA, April, 2009) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
79. Virginia Commonwealth University (Richmond, VA, April, 2009) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
78. University of Kansas (Lawrence, KS, October, 2008) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
77. Kansas State University (Manhattan, KS, October, 2008) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
76. Brown University (Providence, RI April, 2008) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
75. Penn State University (State College, PA, April, 2008) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
74. Gustavus Adolphus College (St. Peter, MN, October, 2007) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
73. University of Minnesota (Minneapolis, MN, October, 2007) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
72. Princeton University (Princeton, NJ, April, 2007) "Dendrimer-Encapsulated Nanoparticles: Synthesis, Characterization, and Electrocatalysis"
71. Trinity University (San Antonio, TX, November, 2006) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
70. Southern Illinois University (Carbondale, IL, April, 2006) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
69. University of Wyoming (Laramie, WY, April, 2006) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
68. Colorado State University (Ft. Collins, CO, April, 2006) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
67. University of Southern Mississippi (Hattiesburg, MS, March, 2006) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
66. Georgetown University (Washington, DC, March, 2006) "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
65. University of California, Davis (Davis, CA, February, 2006) "Synthesis, Characterization, and Catalytic Applications of 1-3 nm-Diameter Dendrimer-Encapsulated Nanoparticles"
64. University of California, Riverside (Riverside, CA, January, 2006) "Synthesis, Characterization, and Catalytic Applications of 1-3 nm-Diameter Dendrimer-Encapsulated Nanoparticles"

63. University of California, Irvine (Irvine, CA, January, 2006) "Synthesis, Characterization, and Catalytic Applications of 1-3 nm-Diameter Dendrimer-Encapsulated Nanoparticles"
62. University of Louisville (Louisville, KY, April, 2005) "Synthesis, Characterization, and Catalytic Applications of 1-3 nm-Diameter Dendrimer-Encapsulated Nanoparticles"
61. University of Florida (Gainesville, FL, December, 2004) "Dendrimer-Encapsulated Metal Nanoparticles: Synthesis, Characterization, and Catalysis"
60. University of Maryland (College Park, MD, March, 2004) "Dendrimer-Encapsulated Metal Nanoparticles: Synthesis, Characterization, and Catalysis"
59. Vanderbilt University (Nashville, TN, March, 2004) "Dendrimer-Encapsulated Metal Nanoparticles: Synthesis, Characterization, and Catalysis"
58. University of Texas-Austin (Austin, TX, January, 2004) "Dendrimer-Encapsulated Metal Nanoparticles: Synthesis, Characterization, and Catalysis"
57. University of Delaware (Newark, DE, December, 2003) "Dendrimer-Encapsulated Metal Nanoparticles: Synthesis, Characterization, and Catalysis"
56. Purdue University (West Lafayette, IN, December, 2003) "Electrochemical Detection and Photonic Reporting in Microfluidic-Based Chemical Sensors"
55. University of North Carolina (Chapel Hill, NC, April, 2003) "Dendrimer-Encapsulated Metal Nanoparticles: Synthesis, Characterization, and Catalysis"
54. Texas A&M University (Dept. of Chemical Engineering, College Station, TX, April, 2003) "Dendrimer-Encapsulated Metal Nanoparticles: Synthesis, Characterization, and Catalysis"
53. Michigan State University (East Lansing, MI, January, 2003) "Dendrimer-Encapsulated Metal Nanoparticles: Synthesis, Characterization, and Catalysis"
52. Northwestern University (Evanston, IL, October, 2002) "Dendrimer-Encapsulated Catalysts"
51. University of Northern Iowa (Cedar Falls, IA, October, 2002) "Dendrimer-Encapsulated Catalysts"
50. University of Miami (Coral Gables, FL, February, 2002) "Dendrimer-Encapsulated Metal Nanoparticles: Synthesis, Characterization, and Catalysis"
49. Oklahoma State University (Stillwater, OK, November, 2001) "Dendrimer-Encapsulated Catalysts"
48. Auburn University (Auburn, AL, October, 2001) "Dendrimer-Encapsulated Catalysts"
47. University of Washington (Seattle, WA, May, 2001) "Dendrimer-Encapsulated Catalysts"
46. Duquesne University (Pittsburgh, PA, October, 2000) "Dendrimer-Encapsulated Nanoparticles: Catalysis and Luminescence"
45. Washington University (St. Louis, MO, September, 2000) "Dendrimer-Encapsulated Nanoparticles: Catalysis and Luminescence"
44. University of California, Irvine (Irvine, CA, April, 2000) "Dendrimer-Encapsulated Metal and Semiconductor Nanoparticles"

43. University of South Carolina (Columbia, SC, November, 1999) "Catalysis Using Dendrimer-Encapsulated Metal Nanoparticles"
42. Furman University (Greenville, SC, November, 1999) "Catalysis Using Dendrimer-Encapsulated Metal Nanoparticles"
41. Indiana University (Bloomington, IN, April, 1999) "Catalysis Using Dendrimer-Encapsulated Metal Nanoparticles"
40. University of Kentucky (Lexington, KY, February, 1999) "Chemical Sensors and Interfacial Design"
39. University of Alabama (Tuscaloosa, AL, January, 1999) "Hyperbranched Polymers: New Materials for Chemical Sensing and Biological Chemistry"
38. Truman State University (Kirksville, MO, October, 1998) "Interfacial Design for Chemical Sensor Arrays"
37. Grinnell College (Grinnell, IA, October, 1998) "Interfacial Design for Chemical Sensor Arrays"
36. Northwestern University (Evanston, IL, October, 1998) "Electrocatalysis using Dendrimer-Encapsulated Metal Nanoclusters"
35. Colorado State University (Ft. Collins, CO, August, 1998). "Electrocatalysis using Dendrimer-Encapsulated Metal Nanoclusters"
34. Washington State University (Pullman, WA, April, 1998). "Interfacial Design for Chemical Sensor Arrays"
33. University of Florida (Gainesville, FL, March, 1998). "Interfacial Design for Chemical Sensor Arrays"
32. University of Iowa (Iowa City, IA, February, 1998). "Interfacial Design for Chemical Sensor Arrays"
31. University of Wisconsin (Madison, WI, February, 1998). "Interfacial Design for Chemical Sensor Arrays"
30. University of Houston (Houston, TX, November, 1997). "Interfacial Design for Chemical Sensor Arrays"
29. University of Delaware (Newark, DE, March, 1997). "Chemical Sensors and Interfacial Design"
28. University of Michigan (Ann Arbor, MI, January, 1997). "Chemical Sensors and Interfacial Design"
27. Louisiana State University, CAMD (Baton Rouge, LA, August, 1996). "Chemical Sensors and Interfacial Design"
26. University of Illinois, Department of Chemistry (Urbana, IL, April, 1996). "Chemical Sensors and Interfacial Design" (Invitation by students).
25. University of Minnesota, Department of Chemical Engineering and Materials Science (Minneapolis, MN, February, 1996). "The Molecular Basis of Adhesion"
24. Auburn University (Auburn, AL, February, 1995). "Fabrication of Electrodes and Electrode Arrays using Self-Assembled Monolayer Resists"

23. Georgia Institute of Technology (Atlanta, GA, February, 1995). "Fabrication of Electrodes and Electrode Arrays using Self-Assembled Monolayer Resists"
22. University of Georgia (Athens, GA, February, 1995). "Fabrication of Electrodes and Electrode Arrays using Self-Assembled Monolayer Resists"
21. University of Texas (Dallas, TX, April, 1994). "Interactions Between Monolayers and Molecules"
20. University of North Texas (Denton, TX, April, 1994). "STM of Thin Organic Films"
19. University of Utah (Salt Lake City, UT, February, 1994). "Interactions Between Monolayers and Molecules"
18. University of Mississippi (University, MS, January, 1994). "Interactions Between Monolayers and Molecules"
17. University of Wisconsin (Madison, WI, December, 1993). "Interactions Between Monolayers and Molecules"
16. University of Illinois (Urbana, IL, December, 1992). "Nanometer-resolved interactions between scanning probes, organic monolayers, and gold substrates"
15. Texas A&M University (College Station, TX, October, 1992). "Nanometer-resolved interactions between scanning probes, organic monolayers, and gold substrates"
14. University of Wyoming (Laramie, WY, September, 1992). "Interactions Between Probe Molecules and Organized Monolayers: A New Paradigm for Molecular Recognition"
13. Colorado State University (Ft. Collins, CO, September, 1992). "Interactions Between Probe Molecules and Organized Monolayers: A New Paradigm for Molecular Recognition"
12. University of Texas at Austin (Austin, TX, April, 1992). "Organized Monolayers on Surfaces: New Functions and Structural Insights"
11. San Diego State University (San Diego, CA, November, 1991). "Organized Monolayers on Surfaces: New Functions and Structural Insights"
10. Northern Arizona University (Flagstaff, AZ, November, 1991) "Organized Monolayers on Surfaces: New Functions and Structural Insights"
9. University of Texas at El Paso (El Paso, TX, November, 1991). "Materials Chemistry Aspects of Electrochemistry"
8. University of New Mexico, Center for High Technology Materials (Albuquerque, NM, April, 1990). "Microelectrochemical Devices: Transistors, Diodes, and Sensors"
7. New Mexico State University (Las Cruces, NM, February, 1990). "Solid State Electrochemical Devices Employing a Solid Polymer Electrolyte"
6. University of Pittsburgh (Pittsburgh, PA, April, 1989). "Highly Oxidized and Reduced Electronically Conducting Polymers: Finite Windows of High Conductivity"
5. Michigan State University (East Lansing, MI, March, 1989). "Highly Oxidized and Reduced Electronically Conducting Polymers: Finite Windows of High Conductivity"
4. Indiana University (Bloomington, IN, February, 1989). "Highly Oxidized and Reduced Electronically Conducting Polymers: Finite Windows of High Conductivity"

3. Colorado State University (Ft. Collins, CO, January, 1989). "Highly Oxidized and Reduced Electronically Conducting Polymers: Finite Windows of High Conductivity"
2. Pennsylvania State University (University Park, PA, January, 1989). "Highly Oxidized and Reduced Electronically Conducting Polymers: Finite Windows of High Conductivity"
1. University of Wisconsin (Madison, WI, January, 1989). "Highly Oxidized and Reduced Electronically Conducting Polymers: Finite Windows of High Conductivity"

### **Government Laboratories & Agencies, and Businesses**

18. Intel Corporation (Santa Clara, CA, March, 2010) "Bipolar Electrodes: a Simple Means for Concentration, Separation, and Detection of Analytes in Microfluidic Channels"
17. 3M Innovation Center (Austin, TX, September, 2006) "Electrochemical Detection and Photonic Reporting in Microfluidic-Based Chemical Sensors"
16. DuPont (Wilmington, DE, April, 2005) "Synthesis, Characterization, and Catalytic Applications of 1-3 nm-Diameter Dendrimer-Encapsulated Nanoparticles"
15. GlaxoSmithKline (RTP, NC, April, 2003) "Microfluidic Biosensors: Reactions, Mixing, and Detection"
14. WTEC Biosensing Study (NIH, Bethesda, MD, December, 2002) "Bio/Chemical Sensing using Thin Film Recognition Elements"
13. Michigan Molecular Institute (Midland, MI, May, 2002). "Dendrimer-Encapsulated Metal Nanoparticles"
12. Shell Chemical Co. (Houston, TX, February, 2001). "Dendrimer Encapsulated Catalysts"
11. ACLARA Biosciences (Mountain View, CA, July, 1999). "Hyperbranched Polymers: New Materials for Chemical Sensing and Biological Chemistry"
10. Sandia National Laboratories (Albuquerque, NM, March, 1999). "Hyperbranched Polymers: New Materials for Chemical Sensing and Biological Chemistry"
9. ATP Workshop on Chemical Sensors and Biosensors (NIST, Gaithersburg, MD, July, 1998). "An Integrated, Consortium-based Approach for Chemical Sensor R&D"
8. Workshop on Properties and Applications of Dendritic Polymers (NIST, Gaithersburg, MD, July, 1998). "Chemical Sensors Based on Surface-Confined Dendrimers and Surface Acoustic Wave (SAW) Devices"
7. NIST (Gaithersburg, MD, July, 1998). "Electrocatalysis using Dendrimer-Encapsulated Metal Nanoclusters"
6. Amoco Chemical (Naperville, IL, December, 1997). "Hyperbranched Polymers on Surfaces: Synthesis, Characterization, and Applications to Corrosion Passivation and Permselective Membranes"
5. Michigan Molecular Institute (Midland, MI, January, 1997). "Chemical Sensors and Interfacial Design"
4. NIST (Gaithersburg, MD, July, 1996). "Chemical Sensors and Interfacial Design"
3. Naval Research Laboratory (Washington, DC, August, 1991) "Surface-Confined Monolayers that Perform Specific Tasks"

2. Dow Chemical Company (Midland, MI, June, 1991). "Electrochemical Routes to Ceramics and Ceramic Precursors"
1. Sandia National Laboratories (Albuquerque, NM, January, 1991). "Self-Assembling Monolayers"

### **U. S. Scientific Conferences**

127. Pittsburgh Conference (Orlando, FL, March, 2012). "Self-powered microelectrochemical devices".
126. Southwest Regional Meeting of the ACS (Austin, TX, November, 2011). "Bipolar Electrodes: a Simple Modality for Concentration, Separation and Detection of Analytes in Microfluidic Channels".
125. Seventh Potter's Lodge Meeting on Electrochemistry (Blue Mtn. Lake, NY, September, 2011). "Self-Powered Electrochemical Devices".
124. Pittsburgh Conference (Atlanta, GA, March, 2011). "Electrocatalytic Properties of Core/Shell Nanoparticles".
123. PacifiChem (Honolulu, Hawaii, December, 2010). "Electrochemical Synthesis of Core/Shell Dendrimer-Encapsulated Nanoparticles"
122. PacifiChem (Honolulu, Hawaii, December, 2010). "Bipolar Electrode Focusing"
121. First Student Potter's Lodge Meeting on Electrochemistry (Blue Mtn. Lake, NY, September, 2010). "Bipolar Electrodes: A Simple Means for Concentration, Separation, and Detection of Analytes in Microfluidic Channels"
120. DOE Separations and Analysis Contractors' Meeting (Baltimore, MD, April, 2010) "Bipolar Electrode Focusing for Concentration Enrichment and Analyte Separations"
119. Materials Research Society (San Francisco, CA, April, 2010). "Electrochemical Synthesis of Core/Shell Dendrimer-Encapsulated Nanoparticles"
118. Pittsburgh Conference (Orlando, FL, March, 2010). "Bipolar Electrode Arrays" Charles N. Reilley Award Address.
117. 2010 Center for Electrochemistry Annual Workshop on Electrochemistry (Austin, TX, February, 2010). "Bipolar Electrodes: A Simple Means for Concentration, Separation, and Detection of Analytes in Microfluidic Channels".
116. Chemical and Biological Defense Science and Technology Conference (Dallas, TX, November, 2009). "Understanding and Implementing Large-Scale Bipolar Electrode Arrays".
115. Sixth Potter's Lodge Meeting on Electrochemistry (Blue Mtn. Lake, NY, September, 2009). "Bipolar Electrodes: A Simple Means for Concentration, Separation, and Detection of Analytes in Microfluidic Channels".
114. Extreme Biosensing (Makena, Maui, Hawaii, December, 2008). "Extreme Bipolar Electrodes".
113. ACS National Meeting (Philadelphia, PA, August, 2008). "Electrochemical Array Sensors Based on Bipolar Electrodes" and "Synthesis, Characterization, and Electrocatalytic Properties of Well-defined PdCu Dendrimer-encapsulated Nanoparticles"



112. Gordon Research Conference on Bioanalytical Chemistry (Smithfield, RI, July, 2008). "Wireless Electrochemical DNA Microarrays"
111. Pittsburgh Conference (New Orleans, LA, March, 2008). "Electrocatalysis Using Nanoscale Bimetallic Nanoparticles"
110. 2008 Mesilla Chemistry Workshop on New Frontiers of Electrocatalysis (Mesilla, NM, February, 2008). "Electrocatalysis Using Nanoscale Bimetallic Nanoparticles"
109. Fifth Potter's Lodge Meeting on Electrochemistry (Blue Mtn. Lake, NY, Sept., 2007). "Synthesis, Characterization, and Electrocatalytic Applications of Dendrimer-Encapsulated Nanoparticles"
108. 2007 Meeting of the DOE/BES Catalysis and Chemical Transformations Program (Wintergreen, VA, May, 2007) "Understanding Multimetallic Catalysts using Dendrimer-Encapsulated Nanoparticles" (poster)
107. CNM Nanomaterials Conference (The University of Texas at Austin, Austin, TX, November, 2006) "Electrocatalytic Oxygen Reduction using Well-defined PtPd Bimetallic Nanoparticles"
106. Texas Section of the Electrochemical Society (Austin, TX, October, 2006). "Electrocatalytic Oxygen Reduction using Well-defined PtPd Bimetallic Nanoparticles"
105. American Chemical Society National Meeting (San Francisco, CA, September, 2006). "Electrocatalytic O<sub>2</sub> Reduction at Glassy Carbon Electrodes Modified with Well-defined dendrimer-encapsulated PtPd Alloy Nanoparticles"
104. DOE-BES Analysis Research Meeting (Warrenton, VA, April, 2006). "A Fundamental Study of Transport within a Single Nanoscopic Channel"
103. Pittsburgh Conference (Orlando, FL, March, 2006). "Analytical Applications of Single-Pore Membranes Based on Carbon Nanotubes"
102. Fourth Potter's Lodge Meeting on Electrochemistry (Blue Mountain Lake, NY, September, 2005). "A Highly Sensitive Electrochemical Array Detector for DNA and Proteins"
101. Materials Research Society (San Francisco, CA, March, 2005). "Synthesis, Characterization, and Catalytic Applications of 1-3 nm-Diameter Dendrimer-Encapsulated Nanoparticles"
100. Pittsburgh Conference (Orlando, FL, March, 2005). "Preconcentration of DNA using a Hydrogel-Based Transport Modulator"
99. Eastern Analytical Symposium (Somerset, NJ, November, 2004). "Characterization of Polymeric Particles using a Nanotube-Based Coulter Counter"
89. American Chemical Society ProSpectives Conference on Emerging Opportunities in Chemical and Biosensing (Santa Fe, NM, May, 2004). "ECL-Based Diagnostics: Commercial Success and Prospects for the Future"
88. William H. Nichols Distinguished Symposium (White Plains, NY, April, 2004). "Electrochemical Detection and Photonic Reporting in Microfluidic Systems"
87. Gordon Research Conference on Facilitated Chemical Synthesis (Ventura, CA, March, 2004). "Dendrimer-Encapsulated Metal Nanoparticles: Synthesis, Characterization, and Catalysis"

86. Second International Symposium on Nanobiotech 2004 (Big Island, HI, January, 2004). "Coulter Counters Based on Carbon Nanotube Membranes"
85. 204<sup>th</sup> Electrochemical Society Meeting (Orlando, FL, October, 2003). "Analytical Applications of Single-Pore Membranes Based on Carbon Nanotubes" (Carl Wagner Memorial Award Address)
84. Third Potter's Lodge Meeting on Electrochemistry (Blue Mtn. Lake, NY, Sept., 2003). "Electrochemistry on a Chip"
83. Gordon Research Conference on the Physics and Chemistry of Microfluidics (Big Sky, MT, August, 2003). "Electrokinetic Trapping on a Chip"
82. SmallTalk 2003 (San Jose, CA, July, 2003). "Electrogenerated Chemiluminescence as a Sensitive Detection Strategy in Microfluidic Systems"
81. Gordon Research Conference on Analytical Chemistry (New London, CT, June, 2003). "An Electrochemical-Based Nanoparticle Counter with Applications to Bioanalysis"
80. LabAutomation (Palm Springs, CA, February, 2003). "Electrochemical Detection and Photonic Reporting in Microfluidic Systems"
79. Materials Research Society (Boston, MA, December, 2002). "Composite Thin Films of Dendrimer-Encapsulated Metal Nanoparticles and Conducting Polymers"
78. SmallTalk 2002 (San Diego, CA, July, 2002). "Electrochemical Sensing in Microfluidic Systems Using Electrogenerated Chemiluminescence (ECL) as a Photonic Reporter of Redox Reactions"
77. Golden Gate Polymer Forum (San Jose, CA, May, 2002). "Selective Transport through Well-Defined Dendrimeric Polymers"
76. The Pittsburgh Conference (New Orleans, LA, March, 2002). "Molecular Filtration Using Single Porous Molecules"
75. Second Potter's Lodge Meeting on Electrochemistry (Blue Mtn. Lake, NY, Sept., 2001) "Single Molecule Filtration"
74. Gordon Research Conference on Analytical Chemistry (New London, CT, June, 2001). "Dendrimer-Encapsulated Catalysts"
73. Materials Research Society (San Francisco, CA, April, 2001). "Dendrimer-Encapsulated Catalysts"
72. 199<sup>th</sup> Electrochemical Society Meeting (Washington, DC, March, 2001). "Single Carbon-Nanotube Membranes: A Well-Defined Model for Studying Mass Transport through Nanoporous Matrixes"
71. The Pittsburgh Conference (New Orleans, LA, March, 2001). "Mass Transfer through Carbon Nanotubes"
70. Gordon Research Conference on Electrochemistry (Ventura, CA, January, 2001). "Single File in a Single Pore"
69. Army Research Office Agent Water Monitors Workshop (Aberdeen Proving Grounds, MD, August, 2000) "A General Approach for High Throughput Screening of Mutant Enzymes for Remediation of Chemical and Biological Agents Using Arrays of Living Cells"

68. American Chemical Society National Meeting (Washington, DC, August, 2000). "Patterned Arrays of Cells"
67. American Chemical Society National Meeting (Washington, DC, August, 2000). "Dendrimer-Encapsulated Nanoparticles: Applications to Catalysis"
66. Department of Energy Council on Chemical Sciences Workshop on Emergent Properties and Functions in Nanoscale Chemistry (Santa Fe, NM, April, 2000). "Template Approaches for Preparing Nanostructures"
65. American Chemical Society National Meeting (San Francisco, CA, March, 2000). "A Simple Approach for Preparing Patterned, Micron Scale Corrals for Controlling Cell Growth"
64. The Pittsburgh Conference (New Orleans, LA, March, 2000). "Electrochemical Studies at Geometrically Well-Characterized Nanoelectrode Arrays"
63. The Pittsburgh Conference (New Orleans, LA, March, 2000). "Carbon Nanotube Electrodes"
62. Materials Research Society (Boston, MA, November, 1999). "A Simple Approach for Preparing Patterned, Micron-Scale Corrals for Controlling Cell Growth: Applications to Biosensing"
61. Materials in the Heartland (Carbondale, IL, October, 1999). "Dendrimer-Encapsulated Metal and Semiconductor Nanoparticles"
60. Joint International Meeting of The Electrochemical Society, The Electrochemical Society of Japan, and the Japan Society of Applied Physics (Honolulu, HI, October, 1999). "Catalysis Using Dendrimer-Encapsulated Metal Nanoparticles"
59. Joint International Meeting of The Electrochemical Society, The Electrochemical Society of Japan, and the Japan Society of Applied Physics (Honolulu, HI, October, 1999). "Electrochemistry Using Single Carbon Nanotubes and Applications to Scanning Electrochemical Microscopy"
58. American Chemical Society National Meeting (New Orleans, LA, August, 1999). "Dendrimer-Encapsulated Nanoparticles: Synthesis, Characterization, and Applications"
57. South Texas Local Section of The Electrochemical Society (Austin, TX, June, 1999). "Dendrimer-Encapsulated Metal Particles for Homogeneous and Heterogeneous Catalysis"
56. 195<sup>th</sup> Electrochemical Society Meeting (Seattle, WA, May, 1999). "Heterogeneous and Homogeneous Catalysis Using Monodisperse, Dendrimer-Encapsulated Metallic Nanoparticles"
55. 195<sup>th</sup> Electrochemical Society Meeting (Seattle, WA, May, 1999). "Electrochemistry Using Single Carbon Nanotubes"
54. Materials Research Society National Meeting (Boston, MA, November, 1998). "Deposition of Metallic Nanoclusters within Dendrimer Templates"
53. 194<sup>th</sup> Electrochemical Society National Meeting (Boston, MA, November, 1998). "Design of Chemically Sensitive Interfaces Based on Hydrophilic and Hydrophobic Dendrimers"
52. 194<sup>th</sup> Electrochemical Society National Meeting (Boston, MA, November, 1998). "Deposition of Metallic Nanoclusters within Dendrimer Templates"

51. 194th Electrochemical Society National Meeting (Boston, MA, November, 1998). "Single-Molecule Electrodes Based on Composite Dendrimer Films"
50. Federation of Analytical Chemistry and Spectroscopy Societies (Austin, TX, October, 1998). "Dendrimer Thin Films for Chemical Sensing"
49. American Vacuum Society, Rocky Mountain Regional Meeting (Arvada, CO, August, 1998) "Chemical Sensors and Interfacial Design"
48. Gordon Research Conference on Chemical Sensors and Interfacial Design (Henniker, NH, July, 1998). "Electrocatalysis using Dendrimer-Encapsulated Metal Nanoclusters"
47. 72nd American Chemical Society Colloid & Surface Science Symposium (University Park, PA, June, 1998). "Dendrimer-Confined, Nanoscopic Metal Clusters"
46. American Chemical Society National Meeting (Dallas, TX, March, 1998). "Electrocatalysts Based on Dendrimer-Confined, Nanoscopic Metal Clusters"
45. Florida Advanced Materials Chemistry Conference (Palm Coast, FL, March, 1998). "Design, Synthesis, Characterization, and Applications of Hyperbranched Polymer Films"
44. Gordon Research Conference on Electrochemistry (Ventura, CA, January, 1998). "Electrocatalysts Based on Dendrimer-Encapsulated Metal Clusters"
43. Federation of Analytical Chemists and Chemical Spectroscopists (Providence, RI, October, 1997). "Chemical Sensors Based on Surface-Confined Dendrimers"
42. 192<sup>nd</sup> Meeting of The Electrochemical Society, Inc. and the 48th Annual Meeting of the International Society of Electrochemistry (Paris, France, August/September, 1997). "Chemical Sensors Based on Surface-Confined Dendrimers"
41. American Society of Photobiology (St. Louis, MO, July, 1997). "Interfacial Design for Chemical Sensor Arrays"
40. First NSF Workshop on Chemical Sensors (Blue Mountain Lake, NY, May, 1997). "Organic Monolayers for Chemical Sensing"
39. NSF-GOALI Workshop (Keystone, CO, August, 1996). "New Materials for Chemically Sensitive Interfaces"
38. Sixth International Meeting on Chemical Sensors (Gaithersburg, MD, July, 1996). "Chemically Receptive Surfaces Based on Surface-Confined Dendrimers and Hyperbranched Polymers"
37. 190<sup>th</sup> Electrochemical Society Meeting (San Antonio, TX, October, 1996). "Surface-Confined Dendrimers as Chemically Sensitive Interfaces in SAW-based Sensor Arrays"
36. 190<sup>th</sup> Electrochemical Society Meeting (San Antonio, TX, October, 1996). "Hyperbranched Polymer Films Containing Fluorescent, Hydrophobic, Metal-ion Binding, and Electroactive Functionalities"
35. 190<sup>th</sup> Electrochemical Society Meeting (San Antonio, TX, October, 1996). "Synthesis, Characterization, and Chemical Sensitivity of Self-Assembled Polydiacetylene/Calix[n]arene Bilayers"
34. 190<sup>th</sup> Electrochemical Society Meeting (San Antonio, TX, October, 1996). "An In-situ Electrochemical STM Study of Au(111) Passivated by Self-Assembled Monolayers in Corrosive Environments"

33. Pittsburg Conference (Chicago, IL, March, 1996). "Synthesis, Structural Characterization, and Lithographic Applications of Mono- and Multilayer Diacetylenic Self-Assembled Films on Electrodes"
32. The Adhesion Society National Meeting (Myrtle Beach, SC, February, 1996). "Probing Adhesion Forces at the Molecular Scale" (Plenary talk).
31. Pacifichem '95 (Honolulu, HI, December, 1995). "Electrochemical STM Analysis of Au Corrosion and Corrosion Passivation"
30. American Chemical Society Southeast/Southwest Regional Meeting (Memphis, TN, November, 1995). "Synthesis, Structural Characterization, Photonic Properties, and Lithographic Applications of Mono- and Multilayer Diacetylenic Self-Assembled Films"
29. American Chemical Society Southeast/Southwest Regional Meeting (Memphis, TN, November, 1995). "Molecular Interactions Between Organized, Surface-Confined Monolayers and Vapor-Phase Probe Molecules. Reactions Between Acid-Terminated Self-Assembled Monolayers and Vapor-Phase Bases"
28. Materials Research Society (Boston, MA, November, 1995). "Synthesis, Structural Characterization, Photonic Properties, and Lithographic Applications of Mono- and Multilayer Diacetylenic Self-Assembled Films"
27. 188<sup>th</sup> Electrochemical Society Meeting (Chicago, IL, October, 1995). "An Electrochemical STM Study of the Corrosion Inhibition of Au by Self-Assembled Monolayers"
26. 188<sup>th</sup> Electrochemical Society Meeting (Chicago, IL, October, 1995). "A General Approach for the Electrosynthesis of Metal-Nitride Powders and Thin Films"
25. 188<sup>th</sup> Electrochemical Society Meeting (Chicago, IL, October, 1995). "STM Lithography of Self-Assembled Monolayer Resists: Experimental Parameters Affecting Pattern Quality and Resolution"
24. American Chemical Society National Meeting (Chicago, IL, August, 1995). "A Combined Electrochemical/STM Approach for Patterning Organic Thin Films"
23. American Chemical Society National Meeting (Chicago, IL, August, 1995). "An Electrochemical Method Suitable for Preparing Nine Metal Nitride Powders"
22. American Chemical Society Colloid & Surface Science Symposium (Salt Lake City, UT, June, 1995). "Fabrication of Electrodes and Electrode Arrays Using Self-Assembled Monolayer Resists"
21. American Chemical Society National Meeting (Anaheim, CA, April, 1995). "Selective Molecular Adsorption at the Self-Assembled Monolayer/Vapor-Phase Interface"
20. American Chemical Society Southwest Regional Meeting (Ft. Worth, TX, November, 1994). "STM Lithography: Nanostructures and Nanochemistry"
19. Pittsburgh Conference on Analytical Chemistry and Applied Microscopy (Chicago, IL, March, 1994). "Characterization of Electrode-Confined Nanoporous Membranes by Scanning Tunneling Microscopy and Molecular Probes"
18. Gordon Research Conference, Organic Thin Films (Ventura, CA, February, 1994). "Synthesis and Characterization of Chemically Sensitive Organic Monolayer Surfaces"
17. 184<sup>th</sup> Electrochemical Society Meeting (New Orleans, LA, October, 1993). "Synthesis and Characterization of Arrays of Zero-Dimensional Ultramicroelectrodes"

16. 184<sup>th</sup> Electrochemical Society Meeting (New Orleans, LA, October, 1993). "Electrosynthesis and Characterization of NbN Ceramic Materials"
15. American Chemical Society Regional Meeting (Austin, TX, October, 1993). "Synthesis and Characterization of Simple Self-Assembling Nanoporous Monolayer Assemblies: A New Strategy for Molecular Recognition"
14. The First NSF Materials Chemistry Workshop (Albuquerque, NM, October, 1993). "Interfacial Force Microscopy of Metal Surfaces"
13. American Chemical Society National Meeting (Chicago, IL, August, 1993). "Synthesis and Characterization of Simple Self-Assembling Nanoporous Assemblies: Electrochemical, Scanning Probe Microscopic, and Theoretical Analyses of Two-Dimensional Molecular Recognition Membranes"
12. Gordon Research Conference, Electrochemistry (Ventura, CA, January, 1993). "Molecules and Organized Monolayers: A Basis for Molecular Recognition"
11. American Chemical Society National Meeting (Washington, D. C., 1992). "Interactions Between Ions in Solution and Monolayers of Mercaptan Derivatives Adsorbed to Au Substrates"
10. American Chemical Society National Meeting (Washington, D. C., 1992). "Electrochemical Measurement of the Acid Dissociation Constants of Surface-Confined *n*-Alkanethiol Monolayers Terminated with pH-Sensitive Pendant Groups"
9. 82<sup>nd</sup> Electrochemical Society Meeting (Toronto, Canada, October, 1992). "Hydrogen Bonding Interactions Between Vapor-Phase Probe Molecules and Functionalized Self-Assembled Monolayers: A Combined Study Using Surface Acoustic Wave Devices, FTIR Spectroscopy, and Ellipsometry"
8. 182<sup>nd</sup> Electrochemical Society Meeting (Toronto, Canada, October, 1992). "STM-Induced Lithography: A New Method for Fabricating Ultramicroelectrodes"
7. American Chemical Society National Meeting (San Francisco, CA, April, 1992). "Molecular Recognition: a New Function for Organized Monolayers on Metal Surfaces"
6. Materials Research Society (San Francisco, CA, April, 1992). "Electrochemical Routes to Ceramics and Ceramic Precursors"
5. Rocky Mountain Conference on Analytical Chemistry (Denver, CO, July, 1991). "Scanning Tunneling Microscopy of Defects Contained Within Self-Assembling Monolayers: Kinetics of Formation"
4. Federation of Analytical Chemistry and Spectroscopy Societies (Anaheim, CA, October, 1991). "Controlled Perforation of Self-Assembling *n*-Alkylthiol Monolayers"
3. Pittsburgh Conference on Analytical Chemistry and Applied Microscopy (Chicago, IL, March, 1991). "Molecular Recognition-Based Microelectrochemical Sensors"
2. Federation of Analytical Chemistry and Spectroscopies Societies, 16th Annual Meeting (Chicago, IL, February, 1989). "Electrochemical Studies in Supercritical Fluids"
1. 176<sup>th</sup> Electrochemical Society National Meeting (Los Angeles, CA, October, 1989). "Electrochemical Studies in Supercritical Fluids: CH<sub>3</sub>CN and SO<sub>2</sub>"

## CONTRIBUTED PRESENTATIONS

36. Chemical and Biological Defense Science and Technology Conference (Orlando, FL, November, 2010). "Bipolar Electrode Arrays for Chemical and Biological Sensing"
35. Gordon Research Conference: The Physics and Chemistry of Microfluidics (Lucca, Italy, June, 2009). "Chemical Sensing using Large-scale Electrode Arrays" (poster)
34. MicroTAS 2003 (Squaw Valley, CA, October, 2003). "Electrochemical Detection and Photonic Reporting in a Dual-Channel, Microfluidic-Based Chemical Sensors" (poster)
33. 203<sup>rd</sup> Electrochemical Society Meeting (Paris, France, April, 2003). "Electrochemical Detection and Photonic Reporting in Microfluidic-Based Chemical Sensors"
32. American Chemical Society National Meeting (San Francisco, CA, March, 2000). "Interfacial Reactivity of Hydroxyl-Terminated Monolayers in the Absence of Solvents"
31. Joint International Meeting of The Electrochemical Society, The Electrochemical Society of Japan, and the Japan Society of Applied Physics (Honolulu, HI, October, 1999). "A Simple Lithographic Approach for Preparing Patterned, Micron-Scale Corrals for Controlling Cell Growth: Applications to Biosensing"
30. Materials Research Society National Meeting (Boston, MA, November, 1998). "Aqueous Solvation and Functionalization of Hyperbranched Polyelectrolyte Thin Films"
29. 72<sup>nd</sup> American Chemical Society Colloid & Surface Science Symposium (University Park, PA, June, 1998). "Self-Assembling Dendrimer Monolayers"
28. 1996 Solid State Sensor and Actuator Workshop (Hilton Head Island, SC, June 1996). "Versatile Materials for use as Chemically Sensitive Interfaces in SAW-Based Sensor Arrays"
27. Materials Research Society (Boston, MA, November, 1995). "A Simple Electrochemical Method for the Preparation of Nine Metal-Nitride Powders"
26. American Vacuum Society National Meeting (Minneapolis, MN, October, 1995). "STM-induced Patterning of Organomercaptan SAMs: Characterization and Control of Patterning"
25. American Vacuum Society National Meeting (Minneapolis, MN, October, 1995). "Photolithographic and STM-Induced Patterning of an Ultrathin, Self-Assembled Diacetylenic Resist"
24. American Vacuum Society National Meeting (Denver, CO, October, 1994). "STM-Induced Etching of Ultra-thin Organic Resists: Structure, Mechanism, and Post-etching Elaboration"
23. American Chemical Society National Meeting (Washington, DC, August, 1994). "Synthesis and Characterization of Self-Assembled Monolayers of  $\omega$ -Functionalized Organomercaptans Containing Diacetylene Functional Groups"
22. American Chemical Society National Meeting (Washington, DC, August, 1994). "Layer-by-Layer Growth of One-Dimensional Nylon Fibers by Chemical Vapor Deposition"
21. 1994 Meeting of the Southwestern Analytical Professors (Fresno, CA, January, 1994). "Analysis of Metal Surfaces by Interfacial Force Microscopy"
20. American Chemical Society/Northwest Regional Meeting (Laramie, WY, June, 1993). "Synthesis and Characterization of Simple Self-Assembling Nanoporous Monolayer Assemblies: A New Strategy for Molecular Recognition"

19. American Chemical Society/Northwest Regional Meeting (Laramie, WY, June, 1993). "Electrochemical Synthesis of a Niobium Nitride Precursor and Characterization of Niobium Nitride Powder"
18. American Vacuum Society/New Mexico Chapter (Santa Fe, NM, April, 1993). "Contact Potential Difference Measurement of Thin, Well-Ordered Monolayer Films"
17. American Vacuum Society/New Mexico Chapter (Santa Fe, NM, April, 1993). "Scanning Tunneling Microscope-Induced Lithography of Self-Assembled *n*-Alkanethiol Monolayer Resists"
16. American Vacuum Society/New Mexico Chapter (Santa Fe, NM, April, 1993). "The Nano-Mechanics of Gold Films"
15. 182<sup>nd</sup> Electrochemical Society Meeting (Toronto, Canada, October, 1992). "Selective Organophosphonate Detection Using Self-Assembled Monolayers on SAW Devices"
14. Materials Research Society (San Francisco, CA, April, 1992). "Electrophoretic Deposition of Sol-Gel-Derived Ceramic Coatings"
13. 180<sup>th</sup> Electrochemical Society Meeting (Phoenix, AZ, October, 1991). "Imaging of Defect Structures Within *n*-Alkylthiol Monolayers by a Combination of Underpotential Deposition and Scanning Tunneling Microscopy"
12. 180<sup>th</sup> Electrochemical Society Meeting (Phoenix, AZ, October, 1991). "Formation, Structural Characteristics, and Reactivity of Vapor-Deposited Polyfunctional Organic Mono- and Multilayers on Au"
11. 180<sup>th</sup> Electrochemical Society Meeting (Phoenix, AZ, October, 1991). "Selective Electrostatic Binding of Ions by Monolayers of Mercaptan Derivatives Adsorbed to Au Substrates"
10. 180<sup>th</sup> Electrochemical Society Meeting (Phoenix, AZ, October, 1991). "Electrochemical Synthesis and Characterization of Metal Nitride Ceramics and Ceramic Precursors"
9. Nanoscope Scanning Tunneling Microscope Users Conference (Santa Barbara, CA, June, 1991). "STM Imaging of the Defect Structures within Self-Assembled Monolayers"
8. American Ceramics Society (Cincinnati, OH, April, 1991). "Properties of Bulk and Surface-Confined Electrolytically Generated AlN Ceramics"
7. 178<sup>th</sup> Electrochemical Society Meeting (Seattle, Washington, October, 1990). "Mechanical Properties and Formation Kinetics of Self-Assembled Monolayers"
6. Materials Research Society (San Francisco, CA, April, 1990). "Solid State Microelectrochemical Devices Employing a Solid Polymer Electrolyte"
5. Electrochemical Society, 175th National Meeting (Los Angeles, CA, October, 1989). "Highly Oxidized and Reduced Electronically Conducting Polymers: Finite Windows of Conductivity"
4. Electrochemical Society, 175th National Meeting (Los Angeles, CA, October, 1989). "Measurements of Neutron and Gamma Ray Emission Rates and Calorimetry in Electrochemical Cells Having Pd Cathodes"
3. Gordon Research Conference on Electrochemistry (Oxnard, CA, 1988). "Electrochemistry in Supercritical Organic Fluids"



2. Electrochemical Society -regional meeting (Winedale, TX, 1986). "Reaction Kinetics in Nonaqueous Near-Critical and Supercritical Fluids"
1. Gordon Research Conference on Electrochemistry (Santa Barbara, CA, 1986). "Electrochemistry in Supercritical Fluids"

**SIGNIFICANT SYMPOSIA AND MEETINGS FOUNDED AND ORGANIZED**

27. Co-organizer (with Paul Bohn), Pittcon (Orlando, FL, March, 2012) Symposium Title: "Extreme Electrochemistry - Electrochemistry in Microstructures and Nanostructures".
26. Senior Mention, Gordon Research Seminar on Electrochemistry (Ventura, CA, January, 2012).
25. Co-organizer (with Keith Stevenson), 67<sup>th</sup> Southwest Regional ACS Meeting (Austin, TX, November, 2011), Symposium Title: "Electrochemical Methods: Fundamentals and Applications, a Symposium in Honor of Bard and Faulkner".
24. Co-organizer (with Henry S. White), Seventh Potter's Lodge Workshop on Electrochemistry (Blue Mountain Lake, NY, September, 2009).
23. Founder and organizer: First Student Potter's Lodge Meeting on Electrochemistry (Blue Mtn. Lake, NY, September, 2010).
22. Co-organizer, DOE Workshop on the Oxygen Reduction Reaction (Brookhaven, NY, November, 2009).
21. Co-organizer (with Henry S. White), Sixth Potter's Lodge Workshop on Electrochemistry (Blue Mountain Lake, NY, September, 2009).
20. Organizer, Fifth Potter's Lodge Workshop on Electrochemistry (Blue Mountain Lake, NY, September, 2007).
19. The Academy of Medicine, Engineering, and Science of Texas (TAMEST) Conference Program Committee Member (2006-2007)
18. Co-organizer, Fourth Potter's Lodge Workshop on Electrochemistry (Blue Mountain Lake, NY, September, 2005; with Henry S. White).
17. Founder and Chair, Gordon-Kenan Graduate Research Seminar on Analytical Chemistry (Roscoff, France, June, 2005).
16. Chair, Gordon Research Conference on Analytical Chemistry (Roscoff, France, June, 2005).
15. Co-organizer, Third Potter's Lodge Workshop on Electrochemistry (Blue Mountain Lake, NY, September, 2003; with Henry S. White).
14. Vice Chair, Gordon Research Conference on Analytical Chemistry (New London, CT, June, 2003).
13. Co-organizer, Materials Research Society (San Francisco, CA, April, 2002), Symposium Title: "Chemical and Biological Sensors: Materials and Devices".
12. Co-organizer, Second Potter's Lodge Workshop on Electrochemistry (Blue Mountain Lake, NY, September, 2001; with Debra Rolison and Henry S. White).
11. Co-organizer, Department of Energy Council on Chemical Sciences "Workshop on Emergent Properties and Functions in Nanoscale Chemistry" (Santa Fe, NM, April, 2000).

10. Co-organizer, Federation of Analytical Chemistry and Chemical Spectroscopy (Austin, TX, October, 1998; with David E. Bergbreiter), Symposium Title: "Thin Organic Films for Chemical Sensors".
9. Co-organizer, Second NSF Workshop on Chemical Sensors (Henniker, NH, July, 1998; with Antonio J. Ricco and Jiri (Art) Janata)
8. Co-founder and co-organizer, First NSF Workshop on Chemical Sensors (Blue Mountain Lake, NY, May, 1997; with Antonio J. Ricco and Jiri (Art) Janata)
7. Co-founder and co-chairman, Gordon Research Conference on *Chemical Sensors & Interfacial Design*, July, 1996; with Antonio J. Ricco)
6. Co-founder and co-organizer, First Potter's Lodge Workshop on Electrochemistry (Blue Mountain Lake, NY, September, 1996; with Henry S. White).
5. Co-organizer, American Chemical Society SE/SW Regional Meeting (Memphis, TN, November, 1995; with Charles H. Hussey), Symposium Title: "Spectroscopy and Electrochemistry of Surface-Bound Molecules"
4. Co-organizer, American Chemical Society Colloid & Surface Science Symposium (Salt Lake City, UT, June, 1995; with Henry S. White), Symposium Title: "Electrochemistry of Organized Molecular Interfaces"
3. Co-organizer, Electrochemical Society National Meeting (New Orleans, LA, October, 1993; with Adrian Michael), Symposium Title: "Electrochemistry in Unconventional Media and Under Extreme Conditions"
2. Co-organizer, American Chemical Society National Meeting (Washington, DC, August, 1992; with Marcin Majda), Symposium Title: "Electroanalysis and Surfaces"
1. Organizer, Electrochemical Society National Meeting (Toronto, Canada, October, 1992), Symposium Title: "Scanning Probe Microscopy and Fabrication"

## **RESEARCH COLLABORATORS**

### **Research Scientists**

- |                                  |                                   |
|----------------------------------|-----------------------------------|
| 3. Mr. John Crooks, 2008 – 2009  | (Eastern Virginia Medical School) |
| 2. Dr. Li Sun, 1997 – 2005       | (Pine Research Instr., RTP, NC)   |
| 1. Ms. Claudia Ross, 1990 – 1993 | (Albuquerque, NM)                 |

### **Visiting Scholars**

- |                                |                                      |
|--------------------------------|--------------------------------------|
| 4. Dr. Frank Dalton, 2004      | (Pine Instruments Research, RTP, NC) |
| 3. Dr. Jyh-Myng Zen, 2003      | (Natl. Chung Hsing Univ., Taiwan)    |
| 2. Mr. Michael Lennartz, 1999  | (Univ. Bonn, Bonn, Germany)          |
| 1. Dr. Atsushi Aoki, 1999-2000 | (Nagoya Inst. Tech., Nagoya, Japan)  |

### **Postdoctoral**

- |                               |                           |
|-------------------------------|---------------------------|
| 61. Dr. Emily V. Carino, 2001 | (Brookhaven National Lab) |
|-------------------------------|---------------------------|

60. Dr. Ravikumar Iyyamperumal, 2011 - present (UT-Austin)
59. Dr. Tae-Yeol Jeon, 2011 - present (UT-Austin)
58. Dr. Timothy Alligrant, 2011 - present (UT-Austin)
57. Dr. Abdou Diallo, 2011 - present (UT-Austin)
56. Dr. Rachel Behrens, 2010 - 2011 (unknown)
55. Dr. Ioana Dumitrescu, 2009 - 2011 (École Normale Supérieure, Paris)
54. Dr. Eoin Sheridan, 2009 - present (University of Queensland, Australia)
53. Dr. Arther Gates, 2008 – 2010 (unknown)
52. Dr. Surojit Pande, 2009 - 2012 (Birla Inst. of Techn. & Sci., India)
51. Dr. Byoung-Yong Chang, 2008 – 2010 (Pukyong National U., Korea)
50. Dr. Derek R. Laws, 2008 – 2009 (Siemens, Lowell, MA)
49. Dr. François Mavré, 2007 - 2009 (University of Paris Diderot-Paris 7)
48. Dr. Rahul Dhopeswarkar, 2007 – 2008 (Advanced Liquid Logic, RTP, NC)
47. Dr. Iksoo Shin, 2007 - 2008 (unknown)
46. Dr. Fco. Javier Guerra Navarro, 2006 - 2008 (Universidad de Castilla-La Mancha)
45. Dr. Arnaud Chovin, 2005 - 2006 (University Paris Diderot-Paris 7)
44. Dr. Young Jin Jeon, 2004 - 2006 (Konkuk Univ., Korea)
43. Dr. Nokyoung Park, 2004 (unknown)
42. Dr. Marc R. Knecht, 2004 - 2007 (University of Miami-Florida)
41. Dr. Sungwon Lee, 2004 – 2005 (unknown)
40. Dr. Marcos Malta dos Santos, 2004 – 2005 (Brazil)
39. Dr. Haohao Lin, 2004 – 2005 (3M, Austin, TX)
38. Dr. Young-Min Bae, 2004 – 2005 (Korea)
37. Dr. Daojun Liu, 2003 – 2004 (Medical Dept., Shantou Univ., China)
36. Dr. Joaquin C. Garcia-Martinez, 2003 – 2005 (Universidad de Castilla-La Mancha)
35. Dr. Jinhua Dai, 2002 - 2004 (Michigan State University)
34. Dr. Robert W. J. Scott, 2002 – 2004 (U. Saskatchewan, Canada)
33. Dr. Stephen Bell, 2001 - 2003 (Halliburton, Houston, TX)
32. Dr. Takashi Ito, 2001 - 2004 (Kansas State Univ.)
31. Dr. Gi Hun Seong, 2001 - 2003 (Hanyang Univ., Seoul, So. Korea)
30. Dr. Sang Keun Oh, 2000-2004 (Ajou University, Ajou, So. Korea)
29. Dr. Julio Alvarez, 2000-2004 (Virginia Commonwealth U.)
28. Dr. K. Joseph Thomas, 2000-2002 (Becton-Dickinson Tech., RTP, NC)
27. Dr. Lee K. Yeung, 1999-2000 (Dow Chemical Co., Freeport, Texas)
26. Dr. Buford Lemon, 1999-2001 (Dow Chemical Co., Midland, MI)
25. Dr. Mi-Kyung Oh, 1998-1999 (Boston)

24. Dr. Pradyut Ghosh, 1998-2000 (Indian Association for the Cultivation of Science, Kolkata, India)
23. Dr. Sheela Berchmans, 1998-1999 (Cent. Electrochemical Res. Inst., India)
22. Dr. Victor Chechik, 1998-1999 (University of York, York, UK)
21. Dr. Charles R. Sabapathy, 1998-2000 (Dallas Independent School System)
20. Dr. William Lackowski, 1997-2000 (Clean Energy Labs, Inc., Austin, TX)
19. Dr. Maurie Garcia, 1997-1998 (Indiana)
18. Dr. Robert Peez, 1997-1998 (Maxit Holding, Freiburg, Germany)
17. Dr. Andreas Hierlemann, 1997-1998 (ETH, Zürich, Switzerland)
16. Dr. Hideo Tokuhisa, 1996-1998 (Natl. Inst. Adv. Res., Tsukuba, Japan)
15. Dr. Bizuneh Workie, 1996-1997 (Jackson St. Univ., Jackson, MS)
14. Dr. Merlin Bruening, 1995-1997 (Michigan State Univ., E. Lansing, MI)
13. Dr. Vimala Mariagnanam, 1995-1996 (Cibavision, GA)
12. Dr. Lenny Tender, 1995 (Naval Research Lab, Washington, DC)
11. Dr. Kwok-Chu Chan, 1994-1996 (unknown)
10. Dr. Laurel Knott, 1994-1996 (U. North Carolina, Chapel Hill, NC)
9. Dr. Huey Yang, 1993-1996 (unknown)
8. Dr. Taisun Kim, 1993-1995 (Hallym University, S. Korea)
7. Dr. Yinquan Li, 1993-1995 (unknown)
6. Dr. Chuanjing Xu, 1993-1994 (Nanomaterials Res. Corp, Tucson, AZ)
5. Dr. Mark Bryant, 1991-1993 (Manchester Coll., N. Manchester, IN)
4. Dr. Yining Zhang, 1991-1993 (unknown)
3. Dr. Larry Kepley, 1991-1992 (TPL, Inc., Albuquerque, NM)
2. Dr. Jongman Park, 1991-1992 (unknown)
1. Dr. Li Sun, 1991-1993 (Pine Research Instrumentation, RTP, NC)

### **Graduate Students**

Mr. Morgan Anderson (2011 - present)

Ms. Rachel Anderson (2010 - present)

Ms. Karen Scida (2010 - present)

Mr. Jim Loussaert (2010 - present)

Mr. Kyle Knust (2010 – present)

Mr. Hong Liu (2009 – present)

Mr. Stephen Fosdick (2009 – present)

Mr. David Yancey (2009 – present)

Ms. Elizabeth Nettleton (2008 – present)

28. Ms. Daphne Sung; M.S., December, 2011

- Thesis title: "Synthesis and Characterization of PtNi Dendrimer-Encapsulated Nanoparticles"
- Current employment: unknown.

27. Dr. V. Sue Myers; Ph.D., December, 2011

- Dissertation title: "Characterization of Dendrimer Encapsulated Nanoparticles by Extended X-ray Absorption Fine Structure and Electrochemical Methods"
- Significant awards and honors: Graduate Student Award to Attend the 60th Meeting of Nobel Laureates in Lindau, Germany
- Current employment: Intel Corporation (Portland, OR).

26. Dr. Emily V. Carino; Ph.D., August, 2011

- Dissertation title: "Underpotential Deposition as a Synthetic and Characterization Tool for Core@Shell Dendrimer-Encapsulated Nanoparticles "
- Current employment: Postdoc, Brookhaven National Lab (Upton, NY).

25. Dr. Brian A. Zaccheo; Ph.D., August, 2011

- Dissertation title: "Application of Enzymatic Catalysis and Galvanic Processes for Biosensor Development"
- Current employment: Intel Corporation (Portland, OR).

24. Dr. Robbyn K. Perdue; Ph.D., December, 2010

- Dissertation title: "Electrokinetic Focusing of Charged Species at a Bipolar Electrode in a Microfluidic Device"
- Significant awards and honors: NSF Graduate Fellowship Awardee
- Current employment: Postdoctoral Associate, University of Washington (Seattle, WA).
- 

23. Dr. Michael G. Weir ; Ph.D., December, 2010

- Dissertation title "Dendrimer-Encapsulated Nanoparticles: Synthetic Methods and Characterization Including Extended X-ray Absorption Fine Structure"
- Current employment: Postdoctoral Associate, Univ. of Nevada, Las Vegas (Las Vegas, NV).

22. Dr. Kwok-Fan Chow; Ph.D., August, 2010
- Dissertation title: "Development of Wireless DNA Microarray Sensors"
  - Significant awards and honors: UT Chemistry Department Dorothy B. Banks Fellowship.
  - Current employment: Postdoctoral Associate, The University of North Carolina (Chapel Hill, NC).
21. Ms. Christina Wales; M.S., May, 2010
- Thesis title: Hydrodynamic Radii of Pt Dendrimer-Encapsulated Nanoparticles and Precursors
  - Current employment: U.S. Patent and Trademark Office.
20. Mr. Tim Balasavage; M.S., August, 2009
- Thesis title: "Quantitative Measurements of the Transfer Efficiency of DNA Microarray Replication"
  - Current employment: unknown.
19. Dr. Joohoon Kim; Ph. D., August, 2007
- Dissertation title: "Development of Microdevices for Applications to Bioanalysis"
  - Significant awards and honors: ACS Division of Analytical Chemistry Summer Fellowship.
  - Current employment: Assistant Professor, Kyung Hee University (Seoul, South Korea).
18. Dr. Rahul Dhopeswarkar ; Ph. D., August, 2007
- Dissertation title: "Electrokinetic Concentration Enrichment within a Microfluidic Device Integrated with a Hydrogel Microplug"
  - Current employment: Advanced Liquid Logic (RTP, NC).
17. Dr. Heechang Ye; Ph. D., December, 2006.
- Dissertation title: "Dendrimer-Encapsulated Metal Nanoparticle Thin Films on Solid Surfaces: Preparation, Characterization, and Applications to Electrocatalysis"
  - Current employment: OCI Corporation (So. Korea).
16. Mr. Raphael Lezutekong; M.S., August, 2006
- Thesis title: "Application of Dendrimer-Encapsulated Pd Nanoparticles in Homogeneous Catalysis: Carbon-Carbon Coupling Reaction (The Stille Reaction)"
15. Dr. Orla M. Wilson; Ph. D., December, 2005
- Dissertation title: "Structure-Function Relationships in Dendrimer-Encapsulated Metal Nanoparticles"
  - Significant awards and honors: ACS Division of Analytical Chemistry Summer Fellowship.
  - Current employment: Lecturer, The Johns Hopkins University (Baltimore, MD).

14. Dr. Jinseok Heo; Ph. D., December, 2005
  - Dissertation title: "Characterization and Applications of Microfluidic Devices Based on Immobilized Biomaterials"
  - Current employment: Assistant Professor, Buffalo State College (Buffalo, NY)
13. Dr. Yong-Gu Kim; Ph. D., December, 2005
  - Dissertation title: "Synthesis and Electrochemical Characterization of Highly Monodisperse Dendrimer-Templated Monolayer-Protected Clusters"
  - Current employment: Hyundai Motors, Korea
12. Dr. Wei Zhan; Ph. D., May, 2004
  - Dissertation title: "Integration of Functional Components into Microfluidic Chemical Systems: Bioimmobilization and Electrochemiluminescent Detection on Chip"
  - Significant awards and honors: 2004 Celanese Outstanding Graduate Student Award; ACS Division of Analytical Chemistry Summer Fellowship.
  - Current employment: Assistant Professor, Auburn University (Auburn, AL)
11. Dr. Gregory P. Perez; Ph. D., May, 2004
  - Dissertation title: "Chemically-Sensitive, Polymer-Mediated Nanoporous Alumina SAW Sensors for the Detection of Vapor-Phase Analytes"
  - Current employment: Halliburton (Houston, TX)
10. Dr. Yanhui Niu; Ph. D., May, 2003
  - Dissertation title: "Dendrimer-Encapsulated Metal Nanoparticles: Synthesis, Characterization, and Applications to Catalysis"
  - Significant awards and honors: Best Poster Presentation Award, Gordon Research Conference on Catalysis; Outstanding Research Presentation Award, PacifiChem 2000 International Meeting.
  - Current employment: Research Scientist, DuPont Central Research (Wilmington, DE)
9. Dr. Wendy S. Baker; Ph. D., May, 2002
  - Dissertation title: "Electrochemical and Spectroscopic Studies of Novel Electroactive Nanostructures"
  - Significant awards and honors: The Colin Garfield Fink Fellowship of The Electrochemical Society.
  - Current employment: Postdoctoral Fellow, University of Texas Medical Branch (Galveston, TX)
8. Dr. Lane A. Baker; Ph. D., December, 2001
  - Dissertation title: "Endgroup Interactions in Poly(amidoamine) and Modified Poly(propylene imine) Dendrimers"
  - Current Employment: Assistant Professor, Indiana University (Bloomington, IN)
7. Dr. Mingqi Zhao; Ph. D., December, 1999

- Dissertation title: "Hyperbranched Polymer Films and Dendrimers: Their Chemistry and Applications"
  - Significant awards and honors: Electrochemical Society Summer Fellowship, Eastman Chemical Company Fellowship, Phillips Petroleum Fellowship, Materials Research Society Graduate Student Award (Gold Medal), Celanese Award for best dissertation.
  - Current employment: NDC (a J&J company in Fremont, CA).
6. Dr. Daniel L. Dermody; Ph. D., December, 1998
    - Dissertation title: "Synthesis and Characterization of Organic Thin Films Incorporating Macrocycles"
    - Current employment: Research Scientist, Dow Chemical Company (Midland, MI)
  5. Dr. Francis P. Zamborini; Ph. D., December, 1998
    - Dissertation title: "Scanning Tunneling Microscopy Studies of Corrosion Passivation and Nanometer-Scale Lithography with Self-Assembled Monolayers"
    - Current employment: Professor, University of Louisville (Louisville, KY)
  4. Dr. Jonathan Schoer; Ph. D., May, 1997
    - Dissertation title: "Fabrication, Characterization, and Applications of Nanometer-Scale Features within Organomercaptan Self-Assembled Monolayers"
    - Significant awards and honors: Electrochemical Society Summer Fellowship, IBM Graduate Fellowship
    - Current employment: Associate Professor, Valparaiso University (Valparaiso, IN).
  3. Dr. Travis Wade; Ph. D., December, 1995.
    - Dissertation title: "Electrochemical Synthesis of Metal-Nitride Ceramic Powders and Metal-Nitride Ceramic Coatings"
    - Current employment: Institut De Physique Experimentale (Lausanne, Switzerland)
  2. Dr. Orawon Chailapakul; Ph. D., December, 1994
    - Dissertation title: "Synthesis and Characterization of Nanoporous Organomercaptan Self-Assembling Monolayers"
    - Current employment: Professor, Chulalongkorn University (Bangkok, Thailand).
  1. Dr. Ross C. Thomas; Ph. D., December, 1994
    - Dissertation title: "Chemical Reactivity and Mechanical Properties of Well-Ordered Organic Films Confined to Conducting Substrates"
    - Current employment: President and founder, Syntrotek Corp. (Boulder, CO).

### **Undergraduate Students**

21. Mr. Allen Chen, 2007
20. Mr. Michael Gabay, 2006 - 2007
19. Mr. John Crooks, 2006 (currently: graduate student at U. Wisconsin)



18. Ms. Maria de Lourdes Cabezas, 2006 - 2011 (currently: graduate student at Northwestern U.)
17. Mr. Mark Nguyen, 2006-2007 (currently: UT Southwest Medical School)
16. Ms. Marquita D. Bradshaw, 2005 (NSF-REU student, current a pharmacy resident at Oklahoma University)
15. Mr. Tom Fennewald, 2004 (currently: graduate student at Indiana University)
14. Ms. Robbyn Perdue, 2003 (currently: postdoc at U. Washington)
13. Mr. Nathan Gaubert, 2003 (NSF-REU student, presently a graduate student at Ohio State U.)
12. Ms. Meghan Campbell, 2002 (NSF REU student, presently an undergrad at Northwestern U.)
11. Ms. Erin Docking, 2001 (Dow Chemical Company, Freeport, TX)
10. Mr. Stephen Hansen, 2000 - 2001 (location unknown)
9. Ms. Melissa Wheeler, 2000 (Forensic chemist, DEA, San Francisco)
8. Ms. Janell Neulinger, 1999 (Chemistry graduate student at UC-Berkeley)
7. Mr. Garrett Slaton, 1999 (Chemistry graduate student at TAMU)
6. Mr. Grant Edwards, 1998, 1999 (Chemistry graduate student at Iowa State University)
5. Mr. Vy Phan, 1997 (location unknown)
4. Mr. Stephen Willis, 1996 (location unknown)
3. Ms. Robin Dahlgren, 1995 (Ph.D., U. Illinois 2002, current location unknown)
2. Mr. Greg Perez, 1993-1994 (Halliburton, Houston, TX)
1. Mr. Bryan Johnson, 1990 (Currently employed at 3M Corporation)